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The Navy and Marine Corps team is best suited to be the 'first responder' for international Humanitarian Assistance / Disaster Relief (HA/DR) operations to fulfill the role of enabler for United States Agency for International Development (USAID), other government agencies, and non-governmental organizations (NGOs) in response to HA/DR.

As the lead for international disaster relief effforts, USAID, specifically Office for Foreign Disaster Assistance (OFDA) is responsible for coordinating international disaster relief efforts for the U.S. With this in mind Department of Defense needs to corrdiante support to OFDA as an enabler for disaster relief efforts. The integration of Deaprtment of Defense and Department of State in paramount for the successful execution of disaster relief efforts.

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PREFACE

Throughout my career I have had the privilege of participating in HA/DR efforts all over the globe. Early in my career, Hurricane Hugo came rolling through Charleston, South Carolina, leaving a path of destruction; homes damaged, trees uprooted, power lines snapped causing extended periods of power outages, roads blocked, basic necessities hard to come by and people in need. This was my second experience assisting after a natural disaster. My first occurred when I was about nine. A tornado ripped across our property in Mississippi damaging our house, uprooting trees and destroying our barn. Luckily no one was injured as this occurred. I have been involved in relief efforts in the U.S., East Timor, Guam, and South America during my career and have seen the faces of people in need, and felt the satisfaction of rendering assistance. I am in no way an expert on HA/DR operations, but have a passion to pursue the facts and make people aware of them. People in need of assistance after the devastation of a major natural or man-made disaster is a serious matter. The obstacles placed in the way of rendering assistance need to be removed: red-tape, lack of understanding, lack of sufficient communication structures, and the lack of manpower and equipment to distribute much needed relief supplies.

This paper addresses the requirements and background of international HA/DR as it applies to the U.S. and its responsibility to render aid. Specifically, it focuses on addressing the issue of the Navy and Marine Corps Team as the U.S. 'first responder' for HA/DR and an enabler for USAID, other Government Agencies, and NGOs engaged in international HA/DR operations. While conducting research on this subject, using the Internet, books, periodicals, interviews, personal experiences, etc., I discovered organizations with purposes, requirements, and roles in HA/DR operations that I did not know existed.

I would like to acknowledge the following individuals for their assistance in researching this subject: Dr. Charles McKenna (my mentor), Mr. James Kunder (former Deputy Director, USAID), Dr. Donald Bittner & Lieutenant Colonel Pat Simon (CG-12 Faculty Advisors), Majors Kate Germano, Matt Lundgren, Jeff Bentz, & Tom Richards (CG-12 Classmates), and most importantly Ms. Rachel Kingcade (Marine Corps Research Library Chief Reference & CSC Direct Support Librarian).

I would like to thank my wife Rebecca for her untiring and devoted support during my many hours of research. Her care and dedication to our children allowed me the requisite time to commit to my research and the creation of this paper. A heartfelt thank you goes out to my children, Aidan and Sage, for their understanding for I was not always there when they needed me.

EXECUTIVE SUMMARY

Title: Department of Defense (DOD) Road Ahead for Humanitarian Assistance / Disaster Relief (HA/DR): Specifically the Navy and Marine Corps Team Contribution

Author: LCDR Peter J. Oldmixon, United States Navy

Thesis: The Navy and Marine Corps Team is best suited to be the U.S. 'first responder' for international Humanitarian Assistance / Disaster Relief (HA/DR) operations to fulfill the role of enabler for United States Agency for International Development (USAID), other government agencies, and non-governmental organizations (NGOs) in response to HA/DR.

Background: As the lead for international disaster relief efforts, USAID, specifically Office for Foreign Disaster Assistance (OFDA) is responsible for coordinating international disaster relief efforts for the U.S. With this in mind DOD needs to coordinate support to OFDA as an enabler for disaster relief efforts. The integration of these two U.S. agencies is paramount for the successful execution of disaster relief efforts.

Recommendations: The lessons learned from multiple disaster relief efforts displayed an attempt at a unity of effort with the U.S. response, but within all of these efforts there were issues that prevented or hampered the effort. The host nation and ultimately the suffering people end up continuing to be victims due to politics, confusion, and disorganization based on many contributing and compounding factors. The recommendations that follow are an attempt to drive towards a unified effort, a seamless integration, a developed command structure with the appropriate doctrine to support, and a standard for communication in the execution of disaster relief efforts. Implementation of these recommendations would ease or alleviate the turmoil typically surrounding initial disaster relief efforts.

Conclusion: The Navy and Marine Corps team have been and will continue to be postured as the U.S. "first responders." The recommendations included in this paper can make the process more efficient, unify relief efforts, and most importantly, allow for aid to be rendered quickly when and where needed. The speed of response, the organic assets, the availability of manpower (trained in HA/DR), and the infrastructure to support suggests that the Navy and Marine Corps team is essential to the initial disaster relief effort. Naval Forces can satisfy initial first responder requirements until other Federal or International Agencies are present. They stand ready to meet the challenges throughout the globe when called upon by the Commander-in-Chief.

INTRODUCTION

"The military (Department of Defense) as an agent for national policy has the instruments and tools to influence diplomacy, information, and economics. The military encompasses and effects all aspects of DIME."[1]

Dr. Eric Shibuya (1 Sep 2010)

The United States (U.S.) as a global power is committed to stability operations, humanitarian assistance and disaster relief (HA/DR). As an integral part of this global power, the Department of Defense (DOD) is responsible for the military aspect of national policy, but plays a vital role in diplomacy, information, and economics. One way DOD participates and influences other areas of national policy is in the areas of HA/DR. In order to provide assistance or help in times of crisis to foreign nations, Congress took action and passed the Foreign Assistance Act into law in 1961. "The Foreign Assistance Act of 1961 (P.L. 87-195) authorized the United States to participate in disaster relief efforts and gave the President great flexibility to respond to disasters with a wide range of government-funded humanitarian assistance."[2] "In 1993, President Clinton designated the Administrator of United States Agency for International Development (USAID) as the Special Coordinator for International Disaster Assistance."[3] The U.S. has stepped up to be the 'first responder' when disaster strikes. USAID, the U.S. entity responsible for international disaster response, is not manned or equipped to respond alone. Therefore, DOD must provide much needed manpower and equipment to meet the demands when disaster strikes internationally.

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[1] Eric Shibuya, Seminar Session Quote, September 1, 2010.

[2] Senate. *Public Law 87-195: Reemployment of Foreign Service Officers or Employees.* 87th Cong., 1st sess., September 4, 1961, 1-2. http://ftp.resource.org/gao.gov/87-195/00005550_353776.pdf (accessed December 6, 2010).

[3] Rhoda Margesson, *International Disasters and Humanitarian Assistance: U.S. Governmental Response*, CRS Report for Congress RL32714 (Washington DC: Congressional Research Service, January 3, 2005), 4, http://www.nationalaglawcenter.org/assets/crs/RL32714.pdf (accessed December 6, 2010).

The Navy and Marine Corps Team (synonymous with naval forces) is best suited to be the U.S. 'first responder' for international HA/DR (also called Foreign Disaster Assistance) operations to fulfill the role of enabler for USAID, other government agencies, and nongovernmental organizations (NGO) in response to HA/DR. As the Special Coordinator for International Disaster Assistance, USAID is in need of support from DOD, but more specifically, the Navy and Marine Corps team. The Navy and Marine Corps team, with a continual forward-deployed presence around the globe, is postured to react quickly and efficiently to the President's call in times of crisis. The manpower, logistics support, fresh-water making capability, equipment, boats, vehicles, helicopters, and command and control structures organic to the Navy and Marine Corps team make them the military force of choice as 'first responder'.

HA/DR response is required when there is a crisis resulting from either a natural disaster (i.e., Typhoons, Earthquakes, Floods, Hurricanes, and Fires) or a man-made disaster (i.e., oil spills, bombings, and nuclear accident). Additionally, famine prevention and intervention are of the upmost importance in the provision of basic necessities (food, water, and shelter) in times of crisis. HA/DR is not just a U.S. government requirement; many NGOs provide assistance and relief. The Navy and Marine Corps team can enable and support NGOs as well as USAID.

Past DOD disaster relief efforts have included support for USAID, non-governmental agencies, United Nations, and Public/Private Charitable Organizations and Programs (i.e., World Food Program, Red Cross). The most important aspect is providing relief, no matter where or who provides it. The lessons learned from past disaster relief efforts support the premise that the Navy and Marine Corps team is vital to timely and efficient response when disaster strikes. Whether in Central America, South America or the far reaches of the Middle East, the Navy and Marine Corps team is postured, trained, equipped, and prepared to render assistance. This

assistance is for all agencies that the President deems necessary for the military to support. The DOD is tasked to support many of the U.S. Governmental Agencies and their respective roles in HA/DR efforts, along with NGOs that offer many different types of disaster relief.

CONTEXT

USAID

The United States Agency for International Development was created as a result of the Foreign Assistance Act of 1961.[4] The establishment of USAID was the U.S. first step to define the bureaucratic process for foreign assistance. A description of USAID is as follows:

> "USAID is an independent federal government agency that receives overall foreign policy guidance from the Secretary of State. [Their] work supports long-term and equitable economic growth and advances U.S. foreign policy objectives by supporting: economic growth, agriculture and trade; global health; and, democracy, conflict prevention and humanitarian assistance. [They] provide assistance in five regions of the world: Sub-Saharan Africa, Asia, Latin American and the Caribbean, Europe and Eurasia, and the Middle East.
>
> With headquarters in Washington, D.C., [their] strength is its field offices around the world. [They] work in close partnership with private voluntary organizations, indigenous organizations, universities, American businesses, International agencies, other governments, and other U. S. government agencies. USAID has working relationships with more than 3,500 American companies and over 300 U.S.-based private voluntary organizations."[5]

In the realm of providing humanitarian assistance (HA/DR is just one of the nine major work areas USAID is responsible for) USAID administers aid through the following programs: "Foreign Disaster Assistance, Food for Peace, Ocean Freight Reimbursement, Denton Program, and three funds-Displaced Children and Orphans Fund (DCOF), Patrick J Leahy War Victims Fund (LWVF), and Victims of Torture Fund (VOT)."[6] Each of the programs is detailed in Appendix A. As of 2007, USAID employed about 3,300 personnel who are responsible for the

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[4] U.S. Agency for International Development, *About USAID,* http://www.usaid.gov/about_usaid/ (accessed December 6, 2010).

[5] USAID, *About USAID,* http://www.usaid.gov/about_usaid/ (accessed December 6, 2010).

[6] USAID, *Humanitarian Assistance,* http://www.usaid.gov/our_work/humanitarian_assistance/ (accessed December 6, 2010).

above listed nine programs and oversight of aid management and control worldwide.[7] To implement programs and provide fund assistance, USAID manages and disperses an annual budget of approximately $26 billion (FY-2009 budget).[8]

Department of Defense

The Department of Defense has a responsibility to provide manpower and equipment when called upon by the President for use in and providing support to those rendering aid, as outlined in the National Security Strategy (NSS). An excerpt from the President's NSS defines the US role in response to Humanitarian Crises:

> "Leading Efforts to Address Humanitarian Crises: Together with the American people and the international community, we will continue to respond to humanitarian crises to ensure that those in need have the protection and assistance they need. In such circumstances, we are also placing a greater emphasis on fostering long-term recovery. Haiti's devastating earthquake is only the most recent reminder of the human and material consequences of natural disasters, and a changing climate portends a future in which the United States must be better prepared and resourced to exercise robust leadership to help meet critical humanitarian needs."[9]

The DOD takes these responsibilities and refines them in the Quadrennial Review (QDR). "The Defense Department must be prepared to provide the President with options across a wide range of contingencies, which include supporting a response to an attack or natural disaster at home, defeating aggression by adversary states, supporting and stabilizing fragile states facing serious internal threats, and preventing human suffering due to mass atrocities or large-scale natural

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[7] Library.ias.edu, *USAID Staffing,* http://library.ias.edu/hs/ssstheme/20081212_aid3.pdf (accessed December 6, 2010).

[8] USAID.gov, *Fiscal Year 2009 Agency Financial Report,* http://www.usaid.gov/performance/afr/afr09.pdf (accessed December 6, 2010).

[9] Barack H. Obama, *The National Security Strategy*, Whitehouse.gov, May 2010, http://www.whitehouse.gov/sites/default/files/rss_viewer/national_security_strategy.pdf (accessed December 8, 2010).

disasters abroad."[10] The DOD has many governing instructions that cover the spectrum of possible operations that could be encompassed by HA/DR. Here are a few examples: 'Civil Support' Joint Pub 3-28, 'Foreign Humanitarian Assistance' Joint Pub 3-29, and 'Peace Operations' Joint Pub 3-07.3.

The element within DOD responsible for interaction with USAID for international disaster relief efforts and with Department of State for other related efforts is the Defense Security Cooperation Agency (DSCA). DSCA manages the following programs: "Humanitarian Assistance, Disaster Relief, and Mine Action (HDM) Program, Excess Property Program, Funded Transportation Program, Denton (Space Available) Program, Foreign Disaster Relief and Emergency Response, Humanitarian and Civic Assistance Program, Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) Appropriation, and Humanitarian Daily Ration (HDR)."[11] Appendix B describes DSCA's programs in detail.

Recently, the Commandant of the Marine Corps outlined what might be described as a traditional role for naval forces in responding to crises. "Our nation's leadership has historically tasked naval forces with providing worldwide, multi-dimensional crisis response capability."[12] Naval forces as a "crisis response 'lead-element' such as Joint Task Force (JTF)-nucleus capable Disaster Assessment Teams and Marine Expeditionary Units (MEU) forward-deployed, [when employed as a] sea base force can provide a stable, safe, and fully equipped command and

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[10] Robert M. Gates, *Quadrennial Defense Review Report,* Defense.gov, February 2010, http://www.defense.gov/qdr/images/QDR_as_of_12Feb10_1000.pdf (accessed December 8, 2010).

[11] Defense Security Cooperation Agency, *DSCA: Office of Humanitarian Assistance, Disaster Relief, and Mine Action (HDM),* http://www.dsca.mil/programs/HA/HA.htm (accessed December 12, 2010).

[12] Commandant of the Marine Corps, *Marine Corps Operating Concepts (MOC)*, version 3, June 2010, 77.

control capability that is already operational while enroute to the scene of crisis."[13] The Navy and Marine Corps Team is best equipped to be the 'first responder'. With trucks, equipment, ships, boats, helicopters, and most importantly manpower, the Navy and Marine Corps Team can respond anywhere in the world that has a coast ("40% of the world's population lives within 100 km of coasts") or water access nearby.[14] The fact that naval forces train to execute these specific missions ensures that they are constantly prepared to render assistance to those in need. Additionally, with forward-deployed assets worldwide, they are postured to react quickly and efficiently in most geographic areas. Appendix C illustrates a geographic snapshot of naval forces spread worldwide on any given day.

Pacific Command (PACOM) has established the Center for Excellence in Disaster Management and Humanitarian Assistance with the mission to: "Educate, train, conduct research and assist in international disaster preparedness, disaster mitigation, disaster management, disaster response, health security, humanitarian assistance and societal resiliency."[15] The Center for Excellence (COE) is:

> "A community of nations prepared to respond, collaborate, and manage natural and man-made disasters. Nations with disaster management plans, prepared to respond to plausible contingencies, and willing to participate in a regional collaborative framework. The COE offers the following programs: Fostering Resilient Societies, Disaster Management, Humanitarian Assistance & Resiliency, Health Security, Civil-Military Coordination, Assessment, and Outreach. Additionally, COE offers three courses, two workshops, and one seminar routinely in order to educate providers of humanitarian assistance: Humanitarian Assistance Response Training (HART) course, United Nations Civil-Military Coordination (UN CMCoord) course, Health Emergencies in Large Populations (HELP) course, Pandemic Influenza workshop series, Regional Health Systems Strengthening (RHSS) workshop series, and the Senior Civil Military Leaders (SCML) seminar."[16]

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[13] MOC, June 2010, 85.

[14] COLUMBIA.edu, *Percentage of Total Population living in Coastal Areas,* http://sedac.ciesin.columbia.edu/es/papers/Coastal_Zone_Pop_Method.pdf (accessed December 12, 2010).

[15] Center for Excellence in Disaster Management & Humanitarian Assistance, *COE-DMHA: About Us*, http://www.coe-dmha.org/AboutUs/Default.aspx (accessed January 4, 2011).

[16] COE-DMHA.org, http://www.coe-dmha.org/AboutUs/Default.aspx (accessed January 4, 2011).

Appendix D describes in detail the programs, courses, workshops, and seminars offered by COE.

ISSUES FOR CONSIDERATION

Doctrine

With the amount of doctrine dedicated to HA/DR, one would expect that the interaction between DOD and other entities, both governmental and non-governmental, would be an established and well-defined relationship with a very detailed command and control structure. This is far from the truth. When looking at lessons learned from multiple disaster response operations, one underlying issue common to all of them are the difficulties of communication. It is as if DOD and other entities speak different languages. This was one of the reasons for the implementation of Joint Publications to alleviate this disparity and to educate DOD and other entities so as to create a productive environment conducive to rendering aid.

Communications

Lessons learned during Operation UNIFIED RESPONSE (the earthquake in Haiti) highlighted the importance of good communications and noted the following: "must be transparent, approachable and responsive, know your audiences for there are many, consistent messaging is key, get everyone saying the same thing, promise nothing but seek to overachieve, manage expectations, establish a Joint Information and Interagency Center (JIIC), and use social networking."[17] Observations from Operation UNIFIED RESPONSE were to "communicate, communicate, communicate."[18] The importance of this could not be over-stated.

Command and Control

Command and Control (C2) Structure is as important as Communication. Both of these are well-documented areas of concern that pervade reflections from HA/DR operations. The Navy

[17] LTG Kenneth Keen, Military Deputy Commander, U. S. Southern Command, "Joint Task Force-Haiti Observations and Recommendations." Doral, FL, 26 August 2010, 8.

[18] LTG Keen, 26 August 2010, 8.

and Marine Corps team have the organic capability of a robust C2 net. The structure of command within the military and DOD is innate, due to the nature of their business. The ability of the Navy and Marine Corps team to rapidly deploy to an area of interest, set up a C2 structure, provide security, and render aid in times of disaster is one of the tenets of DOD forces. The issue is the integration of structures and practices with USAID or another lead agency. There are many doctrines that cover execution and explain integration for the conduct of relief operations. Unfortunately these doctrines have no agreed upon standard for integration. Therefore at the onset of operations, relief efforts encounter obstacles, which waste time, manpower, and resources.

In Operation UNIFIED RESPONSE, LTG Keen (Deputy Commander, U.S. Southern Command) thought it of extreme importance to "coordinate and collaborate to achieve unity of effort."[19] He elaborated on this issue, stating the importance of "understanding other key players (decision makers and their capabilities, strengths and weaknesses), remembering who has the lead, establishment of a Common Operating Picture (COP), [the need for] open, transparent and unclassified info sharing, getting buy-in up front [in order to] execute together, and [most importantly, the establishment of a] Humanitarian Assistance Coordination Cell (HACC)."[20] President Obama's assignment of USAID as the lead Federal Agency made them the coordinator for efforts in Haiti. A key to success in disaster relief efforts is the support of the lead entity. In the case of Haiti, LTG Keen emphasized the importance of supporting the lead agency through, "identification of the lead agency, establishment of clear roles, responsibilities and authorities, reduction of duplicating efforts by identifying roles agreed upon early in the mission, [educating the lead agency on [DOD strengths: ability to surge, plan and make things happen, [as well as,

[19] LTG Keen, 26 August 2010, 3.
[20] LTG Keen, 26 August 2010, 7.

organic] skill sets for HA/DR: medical, engineering, logistics, finance, linguistics, planning and leadership."[21]

Host Nation Government

The role of the Host Nation Government cannot be overemphasized. The relief effort is in support of the Host Nation and should be conducted to support the Host Nation's requests. The system in place to allow DOD forces to participate in these efforts is a result of the Host Nation Government's request for aid. Therefore, Host Nation priorities and goals, taking cultural issues into consideration, need to be accommodated to the maximum extent practicable. LTG Keen's observations reflected this key feature of rendering aid: "respect sovereignty of Host Nation and act at their request, ensure everything has a Host Nation face on it, by, with, and through the Host Nation legitimizes the government in the eyes of the people, after initial response, actions should support long-term Host Nation goals, understand culture, coach, teach, mentor and train, [but do all of this with much] patience."[22]

Logistics

The lifeline of the DOD is logistics; without supplies and the means to resupply forces, DOD would be unable to execute its missions. The logistic capabilities of DOD to move large volumes of materials, supplies, and personnel are of the utmost importance, whether at war or executing disaster relief operations. If the logistics flow shuts down, then the relief effort becomes stalled and again valuable time is wasted waiting for the relief effort to resume. The

[21] LTG Keen, 26 August 2010, 9.
[22] LTG Keen, 26 August 2010, 11.

following is an excerpt from the Marine Air Ground Task Force (MAGTF) Planner's Reference manual, which gives a glimpse into organic assets and weight carrying capabilities:[23]

Table 1. Trucks

Vehicle Type	Curb Wt. (1)	Payload Off/On Road (1)	Towed Load (1)	Fuel	Remarks
MTVR MK-23/25	27,800	14,200/30,000	22,000	78gal/3.8mpg	Basic Cargo Variant
MTVR MK-27/28	30,178	14,200/30,000	22,000	78gal/3.8mpg	Extended wheelbase
MTVR MK-29/30	30,000	14,000/28,000	22,000	78gal/3.8mpg	Dump Truck

Table 2. Helicopters (capabilities)

A/C Type	Mission	Cruise Speed	Weapons Capabilities	Fuel End.	Combat Radius	Troops or Payload (lbs.)	Remarks
CH-46E	Assault Support (medium lift)	120 KIAS	2 x .50-caliber machineguns	2.9 hours	120 nm	12 pax. (4,300 lbs internal)	fastrope platform
CH-53E	Assault Support (heavy lift)	135 KIAS	2 x .50-caliber machineguns	4.0 hours	200 nm	47-55 pax. (20,000 lbs internal)	Can externally lift an LAV

Table 3. Helicopters (sortie rates)

				Surge Period		
				≤ 24 Hrs	48 Hrs	72 Hrs
Squadron (Type A/C)	Aircraft Per Squadron	Sustain Rate	Surge Rate	Post Surge Penalty	Post Surge Penalty	Post Surge Penalty
HMH (CH-53E)	16	2.0	3.0	N/A	1.5	1.0
HMH (CH-53D)	18	2.0	3.0	N/A	1.5	1.0
HMM (CH-46E)	12	2.5	4.0	N/A	2.0	1.5

Appendix E displays a larger sample of Naval Forces assets and their capabilities (ships, helicopters, vehicles, landing craft air cushion (LCAC), boats, water purification, and communications). In response to the flooding in Pakistan (August 2010), 15th Marine Expeditionary Unit transported over 9,000 evacuees and delivered over 6.4 million pounds of life-saving and essential aid supplies and food.[24] From 6 August 2010 to 31 October 2010 the DOD assets (personnel, aircraft, and helicopters) "delivered more than 20 million pounds of relief supplies" to the "20 million people affected."[25] This response provides a great example of the logistic capabilities organic to the DOD.

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[23] COL Glenn T. Starnes Director MAGTAF Staff Training Program Center, *MAGTAF Planner's Reference Manual,* October 2010, 41-94.

[24] 15th Marine Expeditionary Unit Post Deployment Slide Deck, 1 December 2010. https://www.mccll.usmc.mil/mcclladmin/directme.cfm?db=jointmccllcdrm&id=7554&fileID=13819&ftype=Briefings&fname=15TH%20MEU%20SLIDE%2DDECK%20%28UNCLAS%20VERSION%29%201%20DEC%2010%2DCDR%2D7554%2Eppt (accessed on January 6, 2011).

[25] Defense.gov. "Military Reaches Pakistan Flood Relief Milestone." http://www.defense.gov/news/newsarticle.aspx?id=61461 (accessed January 16, 2011).

Cost of Doing Business

The world powers contribute billions of dollars in relief efforts annually to disaster areas worldwide. The amount of funds the U.S. contributes towards disaster relief varies each year based on the magnitude, location, and frequency of disasters. The U.S. Government's money is allocated through USAID for international disaster relief. James Kunder (former Deputy Director of USAID, 2009) explained that OFDA's budget was such a small part of the total USAID budget, with the bulk going to the rest of USAID's elements.[26] The following information is taken from USAID's budgetary reports concerning spending of funds for disaster relief efforts (specifically OFDA):[27]

Table 4. OFDA Funds Obligated for Disaster Response & Preparedness

OFDA FUNDS OBLIGATED FOR DISASTER RESPONSE & PREPAREDNESS FY-05 THROUGH FY-09					
	FY 2005	**FY 2006**	**FY2007**	**FY2008**	**FY 2009**
AFRICA	324,019,536	264,050,626	276,846,079	285,245,658	355,044,601
ASIA & THE PACIFIC	86,101,469	81,478,563	22,058,335	50,230,812	122,734,705
EUROPE, MIDDLE EAST, & CENT. ASIA	77,797,037	50,594,979	64,035,978	109,486,123	118,872,196
LATIN AMERICA & THE CARIBBEAN	1,881,426	6,630,061	5,594,638	17,646,067	2,905,404
PREVIOUS FY DISASTERS	6,300,967	140,066	195,740	8,234,536	22,235,077
GLOBAL RESPONSE	0	0	0	0	46,223
DISASTER RESPONSE	**496,100,435**	**402,894,295**	**368,730,770**	**470,843,196**	**621,791,983**
PREPAREDNESS ACTIVITIES	32,328,141	78,109,784	70,425,232	41,642,980	86,712,116
EVALUATION & MONITORING	1,839,032	1,604,826	2,036,998	0	0
PROGRAM SUPPORT, OPSERATIONS, & COORDINATION	41,891,502	63,909,683	37,589,231	40,610,526	44,837,292
TOTAL FY OBLIGATED FUNDS	**572,159,110**	**546,518,588**	**478,782,231**	**553,096,702**	**753,341,391**

[26] James Kunder Interview, 25 January 2011.
[27] USAID.gov. "Budgetary reports for FY-05-FY-09." (accessed February 16, 2011).

OFDA FUNDS OBLIGATED FOR DISASTER RESPONSE & PREPAREDNESS FY-05 THROUGH FY-09 CONTINUED					
CARRYOVER FUNDS	31,462,983	49,306,014	94,709,485	186,370,190	281,220,330
TOTAL OFDA FY BUDGETED FUNDS	**603,622,093**	**595,824,602**	**573,491,716**	**739,466,892**	**1,034,561,721**

The U.S. Congress is taking a detailed look at government spending in order to evaluate inefficiencies and locate duplication of efforts. By eliminating unnecessary fiscal spending, the government can save money. In an effort to get the most out of our government funds it is essential not to waste time at disaster areas figuring things out. The incorporation of lessons learned from past disaster relief efforts can make the process more efficient, in turn, saving time and money for those in need.

LESSONS LEARNED

Hurricane Katrina, August 2005

On the morning of 29 August 2005, Hurricane Katrina made landfall on the Southeastern Coast of Louisiana, leaving a disaster area of epic proportion. Obstacles to the rendering of aid and the mismanagement of the relief efforts were more devastating than the storm itself. Even though not an international disaster, Hurricane Katrina offered many important insights concerning HA/DR. The lack of timely communication, from the Governor of Louisiana to the President, was one of the major factors contributing to the delay of federal assistance before and after Hurricane Katrina's devastating impact on the Gulf Coast. "The federal government does not have the authority to intervene in a state of emergency without the request of a governor."[28] The Governor needed to ask for specific assistance, i.e., transporting and evacuating personnel, assets to assist in recovery efforts after the storm, etc. Once Hurricane Katrina was declared an 'incident of national significance' on 30 August 2005, DOD leapt into action and this was the

[28] Douglas Brinkley. *The Great Deluge Hurricane Katrina, New Orleans, and the Mississippi Gulf Coast* (New York: Harper Perennial, 2007), 39.

result: "In all, the DOD had 49,200 National Guard members, 17,417 active duty personnel, 20 ships, 360 helicopters, and 93 fixed-wing aircraft in the JTF-Katrina area of operations by September 7."[29]

The issues from Hurricane Katrina were aired across the nation and the world, through congressional hearings, investigations, federal and state committees, and extensively through the media. The media brought to light the lack of communication, the red-tape issues of federal bureaucracy, the lack of disaster response infrastructure, the lack of unity of effort, and those who delayed relief efforts through their actions, or more precisely, their inaction.

Operation CONTINUING PROMISE, Latin America & Caribbean 2008

DOD regularly participates in Medical, Dental, and Construction engagements with partner nations. In the spring of 2008, *USS Boxer* deployed to South America for Operation CONTINUING PROMISE, to render aid in El Salvador, Nicaragua, and Peru. *USS Boxer* deployed with nine helicopters onboard (5-H46s, 2-H53s, & 2-MH60s) and the 24th MEU embarked for operations across the spectrum: Medical, Dental, Veterinary, Construction, and Logistics. In addition to rendering aid, the Marines participated in a Joint Amphibious Exercise with the Peruvian Marines to enhance and hone their most vital skill set: Amphibious Assault. On the eastern coast of South America, *USS Kearsarge* and embarked entities performed similar missions. U.S. Southern Command reported the following for CONTINUING PROMISE 2008:

> "Two U.S. Navy amphibious ships brought health care and other relief services to eight Latin American and Caribbean nations during this humanitarian and civic assistance mission. Humanitarian teams embarked on *USS Kearsarge (LHD 3)* and *USS Boxer (LHD 4)* provided medical care to 71,000 patients, conducted 348 surgeries and completed numerous community renovation projects. Continuing Promise offered

[29] Buddelmeyer, Kevin. *Military First Response: Lessons Learned from Hurricane Katrina*, USAWC Strategy Research Project. Carlisle Barracks, Pa.: U.S. Army War College, April 2007, 11.

valuable training to U.S. military personnel while promoting partnerships and goodwill."[30]

Operation UNIFIED RESPONSE, Haiti 2010

A 7.0 magnitude earthquake struck Haiti on 12 January 2010 at 1653 local time and within hours President Obama issues a statement declaring, the "U.S. stands ready to assist the people of Haiti."[31] JTF-Haiti (Operation UNIFIED RESPONSE) was stood up by the Commander of U.S. Southern Command (USSOUTHCOM) the Joint Combatant Commander (JCC) responsible for South and Central America. LTG Kenneth Keen, Military Deputy Commander of USSOUTHCOM, was assigned as the Commander of JTF-Haiti in charge of Operation UNIFIED REPONSE, the international relief effort to render aid to the people of Haiti. A statistic from JTF-Haiti reported, "that at the high-water mark there were 22,000 DOD personnel and 33 ships employed" in the disaster relief effort.[32] The relief effort consisted of "over 140 different nations offering assistance, over 1,000 NGOs, charities and private foundations," multiple government agencies, and DOD personnel and equipment engaged in disaster assistance through a multitude of avenues.[33]

The extent and level of damage gave some indication of the severity and complexity of relief efforts. The earthquake resulted in damage to "60% of Haitian government infrastructure destroyed, 14 of 16 Ministry Head Quarter buildings destroyed, 3.5 million people experienced strong-to-extreme shaking, an estimated 97,000 dwellings destroyed and 188,000 damaged (53%

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[30] SOUTHCOM.mil. *Continuing Promise May-December 2008.* http://www.southcom.mil/AppsSC/factfiles.php?id=53 (accessed January 14, 2011).

[31] Articles.cnn.com. "7.0 quake hits Haiti; 'Serious loss of life' expected" January 12, 2010. http://articles.cnn.com/2010-01-12/world/haiti.earthquake_1_earthquake-haiti-2010-peacekeeping-mission-president-rene-preval-haiti?_s=PM:WORLD (Accessed January 14, 2010).

[32] COL Richard Chavez, U. S. Southern Command, "Disaster Relief 'Case Studies' Response Process & Timelines." Doral, FL, 26 August 2010, 7.

[33] COL Chavez, 26 August 2010, 7.

of the city of Port-au-Prince), and approximately 90% of schools in the city."[34] The amount of devastation from the earthquake resulted in an international outpouring of donations, which consisted of "$2.8 billion committed, $1.2 billion short-term pledges, and $5.3 billion long-terms pledges."[35] Unfortunately, six months after these pledges were made only 2% of the donations had made their way to the United Nations, who is responsible for their dispersal.[36] Fox News on 12 January 2011 reported, "It appears Haiti has lost hope."[37]

> "The impoverished Caribbean nation marks the anniversary of the Jan. 12, 2010, quake on Wednesday with little to cheer. Haiti's government, which itself was hit hard by the quake, has been incapable of responding to the crisis. Foreign aid has trickled in, and rushes of well-meaning charities have led to chaos. Piles of rubble still clog the streets; at the current rate, it will take 20 years simply to clean up the mess. Nearly a million people still live in about 1,300 makeshift refugee camps that occupy every available parking lot and open space in the capital. With each passing day, the camps take on a more permanent look."[38]

JTF-Haiti published observations and recommendations based on processes and actions performed during Operation UNIFIED RESPONSE to enable future disaster relief efforts to benefit from this experience. The lessons learned were as followed: "Respond quickly and effectively, protect the people, build partnerships, coordinate and collaborate to achieve unity of effort, COMMUNICATE, COMMUNICATE and COMMUNICATE, support the lead Federal Agency, pull from all available resources to form the Joint Task Force, include the Host Nation

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[34] COL Chavez, 26 August 2010, 6.

[35] COL Chavez, 26 August 2010, 7.

[36] Joe Johns, "Most countries fail to deliver on Haiti aid pledges." July 14, 2010 http://ac360.blogs.cnn.com/2010/07/14/most-countries-fail-to-deliver-on-haiti-aid-pledges/ (accessed January 18, 2011).

[37] Ingrid Arnesen. "In Haiti, Hope is the Last Thing Lost." January 12, 2011 http://online.wsj.com/article/SB10001424052748704515904576076031661824012.html?mod=WSJ_hp_MIDDLENexttoWhatsNewsTop (accessed January 12, 2011).

[38] Arnesen, 12 January 2011.

Government, work closely with the UN Humanitarian Community, and anticipate challenges with Internally Displaced Persons (IDPs)."[39]

Pakistan HA/DR 2010

"In the wake of widespread flooding throughout Pakistan over the previous month, the International Red Cross reported that up to 2.5 million people have been affected and more than 1,500 killed" (the actual numbers ended up being over 20 million affected and 1,800 killed).[40] The DOD responded with the immediate transfer of Army assets from Afghanistan to Pakistan to participate in the flood relief efforts. "The *USS Peleliu* Amphibious Ready Group (ARG) and the 15th MEU were dispatched to Pakistan in response to its government's urgent request for flood relief assistance."[41] 15th MEU also "participated in a community relations project at the Santa Bakhita Orphanage outside Dili and supported military-to-military training events, ENCAPS, MEDCAPS, and DENCAPS in Timor Leste" during their eight month deployment.[42] Marine Corps Headquarter stated the following in a press release:

> "The *USS Peleliu* ARG and the 15th MEU already were in the region on a regularly scheduled deployment to the U.S. 5th Fleet area of responsibility. Their proximity to the area of operations is a testament to the value of U.S. maritime forces being forward deployed around the world, ready to respond rapidly to a range of missions such as humanitarian relief, security assistance, or combat operations. The *Peleliu* ARG carries Marine Medium Helicopter Squadron 165, which contains various heavy- and medium-lift and transport-capable aircraft, including four CH-53E Super Stallions and 12 CH-46E Sea Knight helicopters. Additionally, the Marine Corps has seven MEUs, with each containing over 2,100 Marines."[43]

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[39] LTG Keen, 26 August 2010, 3.

[40] Headquarters U.S. Marine Corps, "Keeping the Marine Corps on target: In the Black," 13 August 2010 https://www.mccll.usmc.mil/document_repository/Misc/IN%20THE%20BLACK%20(Pakistan)-CDR-7199.pdf (accessed January 6, 2011).

[41] HQMC, 13 August 2010.

[42] 15th MEU, 1 December 2010.

[43] HQMC, 13 August 2010.

USAID's Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA) Office of U.S. Foreign Disaster Assistance (OFDA) summarized in a report dated 23 December 2010 the financial relief efforts in response to the flood in Pakistan:

> "According to the [National Disaster Management Authority] NDMA, unusually heavy rainfall and flooding in late July and August 2010 affected 18.1 million people throughout Pakistan, with more than 75 percent of affected families located in Sindh and Punjab provinces. Widespread flooding affected 82 of Pakistan's 122 districts, according to the NDMA. As a result, more than 12 million people required humanitarian assistance. On July 30, U.S. Ambassador to Pakistan Anne W. Patterson issued a disaster declaration in response to flooding. In early August, USAID deployed a Disaster Assistance Response Team (DART) to Pakistan to assess humanitarian needs and work closely with the U.S. Embassy in Islamabad to coordinate U.S. humanitarian assistance. USAID/OFDA maintains a program office in Islamabad to monitor humanitarian conditions and ongoing programs. Total FY 2010 and FY 2011 USAID and State Humanitarian Assistance for Pakistan Floods at $591,845,523."[44]

Summary of Lessons Learned

The lessons learned from the various disaster relief efforts displayed an attempt at a unity of effort with the U.S. response, but within all of these experiences issues prevented or hampered the effort. The host nation and ultimately the suffering people end up continuing to be victims due to politics, confusion, and dis-organization based on many contributing and compounding factors. The recommendations that follow represent an attempt to drive towards a unified effort, a seamless integration, a developed command structure with the appropriate doctrine to support, and a standard for communication. Implementation of these recommendations would ease or alleviate the turmoil typically surrounding initial disaster relief efforts.

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[44] USAID, Bureau for Democracy, Conflict, and Humanitarian Assistance (DCHA), Office of U.S. Foreign Disaster Assistance (OFDA), "Pakistan-Floods: Fact Sheet #8" 23 December 2010, http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/countries/pakistan/template/fs_sr/fy2011/pakistan_fl_fs08_12-23-2010.pdf (accessed January 8, 2011).

RECOMMENDATIONS

In after action reports for Operation UNIFIED RESPONSE, the following recommendations were made: "develop a more robust and capable Response Assessment Team, form an International Civilian and Military capability to respond to disasters, conduct exercises together, codify the establishment and use of Humanitarian Coordination Centers, develop and codify 'unclassified' information sharing tools and processes, and examine how best to integrate and support the NGOs and Public/Private Sector in support of HA/DR."[45] In addition to the above recommendations, the following changes would enhance the efficiency and improve the conduct of disaster relief efforts: alignment of boundaries across U.S. governmental agencies, integration of U.S. agencies and foreign agencies, establishment of command and control structures, creation of doctrine, publications and standard operating procedures (SOP), and commitment to a dedicated unity of effort in support of the host nation.

Boundaries for all U.S. governmental agencies should first and foremost be aligned. The fact that Department of State (DOS), USAID, and Department of Defense all have different geographical boundaries across the globe is unacceptable. All of these entities work for the U.S. government and as such an effort to align geographic boundaries should be of the utmost importance to ease tensions during integration efforts in response to disasters. Here is an example if a natural disaster occurred in Egypt; USCENTCOM would be the Combatant Commander responsible, even though geographically Egypt is on the African continent (AFRICOM's geographical area). For the DOS---the Ambassador to Egypt would be responsible, and further for USAID---a Mission Director would be responsible for the area.

[45] LTG Keen, 26 August 2010, 14.

Additionally, the Leader of the DART would be responsible for the execution of disaster relief efforts, if DOS does not assign someone else, as they did in Haiti.

Integration into the structure of USAID's relief effort is essential. The creation of a Humanitarian Coordination Center, to organize and run operations, would be a first step in the right direction to attempt to standardize relief efforts. The DOD's role within the Center would be to provide assistance in establishment of the C2 network and establishment of its subordinate role as the enabler. DOD elements as subordinates to OFDA will be difficult, but necessary to nurture an environment conducive to the rendering of aid and furthering the unity of effort premise. Since law mandates USAID as the lead agency for International Disaster Relief, which OFDA is assigned to execute, it is paramount that DOD not overstep its bounds by attempting to take the lead. Enabler is the role of DOD and, as such, DOD elements should embed themselves into the relief effort structure as supporting agents.

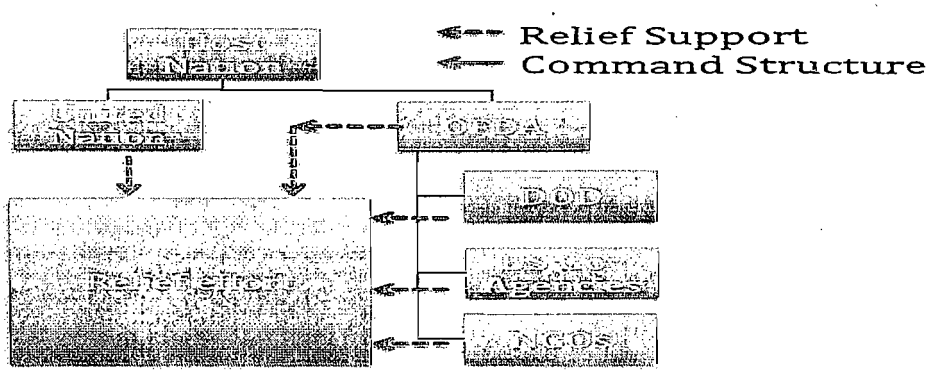
For DOD to be the enabler, USAID's OFDA needs to create and provide guidance for integration. OFDA is the lead agency and as such should coordinate a conference to bring the DOD and interagency partners together to develop doctrine, SOPs, and refinement of roles in response to international humanitarian response. The establishment of a Humanitarian Assistance / Disaster Relief Symposium by OFDA, opening the door to DOS, DOD, COE, DSCA, and a multitude of NGOs, would begin the integration planning and coordinating for HA/DR. The DOD is an enormous entity that can easily overwhelm interagency partners if not careful. OFDA should coordinate specifically with DSCA to workout the specifics for integration of DOD assets.

The communications network needs to be defined and procured to allow for seamless integration by all parties involved. USAID as the lead agency needs to invest in a portable/semi-

portable, low maintenance, user-friendly, and non-secure communication and data network for rapid deployment to the disaster relief area. This network and communication system needs to have interoperability with military communication systems, if the integration is to be successful and symbiotic. The procurement of a new system would mean it can be designed to meet specific requirements and tailored to the environments in which it would be operated. The system could possibly be contracted from existing suppliers when needed, but the legwork for this requirement and the funding for it would need to be prearranged by OFDA.. DOD currently fields the following systems: HyperLite, SWAN, and BGAN which can provide Satellite Communication and Networking capabilities. Appendix F goes into detail on the specifications of these communication systems.

The integration of command structures to alleviate issues of command relationships and the driver for unity of effort is crucial especially at the onset of relief efforts. This is not the time to determine who works for whom and how things will be done, for this wastes valuable time which could better be spent towards relieving suffering. The integration of relief support and command structure to reinforce unity of effort is displayed here:

Figure 1. Relief Support & Command Structure



Logistics mastery is organic within the DOD and this is one of the key areas of responsibility to a relief effort. The trucks, boats, helicopters, and planes available within the

DOD are the assets required for a successful logistic venture. Humanitarian Assistance and Disaster Relief operations are major logistic efforts in an often unorganized and hectic environment. The specialty equipment owned by the DOD is ideal for manipulation of the chaotic environment that remains after a major natural or man-made disaster. For this reason timely response to any request is both a limiting factor to DOD's response time and fundamental to mitigating the effects of any disaster.

The process for requesting DOD disaster relief support can be lengthy if the DOS does not act quickly in the wake of a disaster. The DOD is unable to respond without an Executive Order authorizing such support. The Executive Order is published once DOS informs the President of the Host Nations request for support. With the posturing of DOD forces worldwide and the surge capability of forces at the ready, the DOD is constantly on standby to quickly respond when requested. The creation and implementation of "an International Civilian and Military capability to respond to disasters" would be the answer to organizing relief efforts in the future.[46]

CONCLUSIONS

Naval Forces of the 15th Marine Expeditionary Unit participated in and executed a "HA/DR demonstration and a medical engagement in Sri Lanka" during their recent deployment to the area.[47] The level of and frequency of training to hone these skills reinforces the commitment by Naval Forces to excel in this mission area. The continual tasking of naval forces throughout the world to respond in times of crisis reinforces and supports the views that they (Navy and Marine Corps team) are the best 'first responders' for international disaster relief from the DOD. A report from DOS summarized DODs role in the first weeks of the relief effort:

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[46] LTG Keen, 26 August 2010, 14.
[47] 15th MEU, 1 December 2010.

> "By the end of January, U.S. efforts in Haiti included more than 15,400 troops afloat and 6,800 on the ground, 113 aircraft, and 23 Navy ships, present at the request of the Government of Haiti. Working in coordination with USAID relief programs and priorities identified by disaster response experts on the scene, U.S. military forces distributed more than 2,600,000 liters of water, almost 2,300,000 meals, and over 17,000,000 pounds of bulk food. Operation Unified Response was the U.S. military's longest and largest contribution to a foreign disaster relief operation, covering a wide range of missions: air and seaport operations, medical airlift, medical assistance, transport and delivery of medical commodities, evacuations of American citizens, logistics support, and support for the World Food Program surge."[48]

The Navy and Marine Corps team have been and will continue to be postured as the U.S. 'first responders'. The recommendations included in this paper can make the process more efficient, unify relief efforts, and most importantly, allow for aid to be rendered quickly when and where needed. The speed of response, the organic assets, the availability of manpower (trained in HA/DR), and the infrastructure to support suggests that the Navy and Marine Corps team is essential to the initial disaster relief effort. The Navy and Marine Corps team can satisfy initial 'first responder' requirements until other federal or international agencies/organizations are present. They stand ready to meet the challenges throughout the globe when called upon by the Commander-in-Chief.

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[48] Department of State. "State Department Report: Haiti One Year Later. January 11, 2011 http://www.enewspf.com/latest-news/haiti-earthquake/20970-state-department-report-haiti-one-year-later.html (accessed February 16, 2011).

GLOSSARY

ARG	Amphibious Ready Group
COE	Center for Excellence
COP	Common Operating Picture
C2	Command and Control
DART	Disaster Assistance Response Team
DCOF	Displaced Children and Orphans Fund
DCHA	USAID's Bureau for Democracy, Conflict, and Humanitarian Assistance
DENCAPS	Dental Civic Assistance Programs
DOD	Department of Defense
DOS	Department of State
DSCA	Defense Security Cooperation Agency
ENCAPS	Engineering Civic Assistance Programs
HACC	Humanitarian Assistance Coordination Cell
HA/DR	Humanitarian Assistance / Disaster Relief
HART	Humanitarian Assistance Response Training
HDM	Humanitarian Assistance, Disaster Relief, and Mine Action Program
HDR	Humanitarian Daily Ration
HELP	Health Emergencies in Large Populations course
IDP	Internally Displaced Person
JCC	Joint Combatant Commander
JIIC	Joint Information and Interagency Center
JTF	Joint Task Force
LCAC	Landing Craft Air Cushion
LWVF	Leahy War Victims Fund
MAGTF	Marine Air Ground Task Force
MEDCAPS	Medical Civic Assistance Programs
MEU	Marine Expeditionary Unit
NDMA	National Disaster Management Authority
NGO	Non-Governmental Organization
NSS	National Security Strategy
OFDA	Office of Foreign Disaster Assistance
OHDACA	Overseas Humanitarian, Disaster, and Civic Aid
PACOM	Pacific Command
QDR	Quadrennial Review
RHSS	Regional Health Systems Strengthening workshop series
SCML	Senior Civil Military Leaders seminar
SOP	Standard Operating Procedure
UN-CMCoord	United Nations Civil-Military Coordination Course
USAID	United States Agency for International Development
VOT	Victims of Torture Fund

APPENDIX A

Accessed on 20 December 2010 from: http://www.usaid.gov/our_work/humanitarian_assistance/

Humanitarian Assistance

A hurricane tears through Central America. Civil war creates refugees in the Balkans. Famine strikes the Horn of Africa. Two decades of war in Afghanistan its new government unable to deliver the most basic of services. In these and other situations around the world, the compassion of the American people goes pouring out to those in need through USAID.
The United States gives more to those in crises than any other country in the world. USAID is the U.S. Government agency that is responsible for directing these contributions to thousands of non-profit partners and international organizations like the World Food Program and UNICEF. In tandem with these organizations, the agency helps those affected by disaster to cope and then begin again by converting crisis situations into opportunities to promote peace, democracy, and economic growth. USAID ensures that all of this assistance is spent in the way that most effectively helps those who are in need. The following USAID programs are key to providing humanitarian assistance:

Foreign Disaster Assistance: Responsible for facilitating and coordinating U.S. Government emergency assistance overseas and to provide humanitarian assistance to save lives, alleviate human suffering, and reduce the social and economic impact of natural and man-made disasters worldwide.

Food for Peace: The primary means by which the United States donates food quickly to those people who have the immediate needs because of natural or man-made disasters. Agricultural goods provided by Food for Peace can also be sold or exchanged to help rural communities learn how to produce enough food to meet their own needs, and to teach these communities about nutrition and health.
"Food is strength, and food is peace, and food is freedom, and food is a helping hand to people around the world whose good will and friendship we want." — Then-Senator John F. Kennedy in a 1960 speech in South Dakota, a few weeks before he was elected president.

Ocean Freight Reimbursement: Provides small competitive grants to over 50 U.S. partners each year to reimburse the partner's costs to transport donations, such as medical supplies, agricultural equipment, educational supplies, and building equipment, to developing countries. The Ocean Freight Reimbursement (OFR) Program is the oldest ongoing Private Voluntary Organization (PVO) support program, allowing recipients to ship a wide variety of goods overseas for use in privately funded development and humanitarian assistance programs. The Program provides small competitive grants to approximately 50 U.S. PVOs each year. Funds are used to reimburse the PVOs' costs to transport donated commodities, such as medical supplies, agricultural equipment, educational supplies, and building equipment to developing countries.

Denton Program: Allows nongovernmental organizations or private citizens to use space available on U.S. Military cargo planes to transport humanitarian goods and equipment to countries in need, at little or no cost to them.

The Denton Program allows private U.S. citizens and organizations to use space available on U.S. military cargo planes to transport humanitarian goods, such as clothing, food, medical and educational supplies, and agricultural equipment and vehicles, to countries in need. USAID, the Department of State (DOS), and the Department of Defense (DOD) jointly administer the program. In FY2008, more than 600,000 pounds of humanitarian goods were sent to 17 different countries through the Denton Program.

The Funded Transportation Program: provides door-to-port surface transportation of humanitarian aid to worldwide destinations at little or no cost to the donor. Potential shipments are reviewed for appropriateness and feasibility on a case-by-case basis. All PVOs, non-governmental organizations and individuals interested in shipping to worldwide destinations are encouraged to contact the Program Manager for the Funded Transportation Program at (703) 601-3854. Guidelines and an online application for this program can be found at http://dentonfunded.ohasis.org

The Funds consists of three separate programs operated together:

Displaced Children and Orphans Fund (DCOF): Provides assistance to families who take in children orphaned as a result of war or disaster.

Patrick J. Leahy War Victims Fund (LWVF): For those disabled by conflict, provides assistance in getting prosthetics. Also provides assistance to polio victims.

Victims of Torture Fund (VOT): Supports programs that affirm the dignity of the survivor by restoring his or her position as a functioning and contributing member of the family and the community.

APPENDIX B

DEFENSE SECURITY COOPERATION AGENCY (DSCA) Accessed on 20 December 2010 from: www.dsca.mil

Roles and Responsibilities:

OFFICE OF HUMANITARIAN ASSISTANCE, DISASTER RELIEF AND MINE ACTION (HDM)

Defense Security Cooperation Agency, Programs Directorate

HDM provides timely and effective direction, supervision, and oversight of DoD humanitarian assistance and mine action programs for the Director for Programs, DSCA. HDM programs support foreign policy and national security interests of regional stability, promoting democracies, and economic development. Humanitarian assistance programs meet these goals by providing the Combatant Commanders with unobtrusive, low cost, but highly effective instruments to carry out their theater security cooperation strategies. OHDM manages the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) Appropriation and its sub-activities: humanitarian assistance (including the provision and transportation of non-lethal excess property), humanitarian mine action, and foreign disaster relief and emergency response. Additionally, HDM provides oversight for the Commanders' humanitarian and civic assistance (HCA) projects and manages the Denton Program, a space available transportation program for donor's humanitarian relief supplies and material. OHDM activities are accomplished pursuant to the following legislative authorities: title 10, US Code, sections 401, 402, 404, 2557, 2561; and section 8009, Department of Defense Appropriations Act, FY 2004 (P.L. 108-287, August 5, 2004). Specific duties and responsibilities:

1. Participates as a member of the U.S. Government (USG) Policy Coordination Committee (PCC) Sub-group on Humanitarian Mine Action (HMA).
2. Supports the Administration's humanitarian mine action initiatives, which seek to focus the efforts of the US in cooperation with the international community to eliminate the worldwide landmine problem, including managing operations of the Humanitarian Demining Training Center (HDTC) at Fort Leonard Wood, Missouri.

• Provides program management for the Department of Defense (DoD) components of humanitarian mine action: infrastructure development for host nation mine action agencies, explosive remnants of war (ERW) education and risk reduction, demining training activities (survey/marking/mapping, clearance, and quality assurance/control), victims' assistance, and coordinates with the research and development program to improve the effectiveness of all aspects of the first 4 pillars.

3. Plans, programs, formulate, justify, and allocate budget authority from the OHDACA appropriation to support DoD humanitarian assistance programs.
4. Provides annual reports to Congress on HDM and HCA activities pursuant to title 10 U.S.C. sections 401 and 2561, and section 8009, Department of Defense Appropriations Act, FY 2005 (P.L. 108-287, August 5, 2004).
5. Formulates, prepares, and defends the OHDACA portion of the president's budget and reviews draft legislation related to all HDM programs.
6. Prepares testimony and talking points for congressional hearing and/or official visits of government officials.

7. Responds to requests for information from congressional staff and Freedom of Information Act (FOIA) requests related to humanitarian assistance programs and activities
8. Manages, coordinates, and monitors execution of DOD HDM planning, operations and related program activities.
9. Provides oversight, interagency coordination, and program approvals for HDM, foreign disaster relief and emergency response, space available transportation, and humanitarian and civic assistance (HCA) activities.
10. Reviews, approves and provides oversight for all Combatant Commanders' HDM programs.
11. Manages the DoD Humanitarian Excess Property (HAP-EP) program by identifying, selecting, transporting, storing and maintaining, and distributing non-lethal excess DoD property worldwide.
12. Assists the Office of the Joint Chiefs of Staff (OJCS), United States Special Operations Command (USSOCOM), Combatant Commanders, host countries and other organizations in planning for, establishing, and executing HDM and HCA programs.
13. Establishes and maintains memoranda of understanding with Defense Components and the U.S. Agency for International Development for the conduct of funded and space available humanitarian and foreign disaster assistance/emergency response initiatives.
14. Coordinates planned humanitarian assistance activities with non-governmental/private voluntary relief organizations (NGO/PVO).
15. Manages the Humanitarian Daily Ration (HDR) program to include procuring, storing, inventory management, obtaining interagency approval for issue, transporting, and distributing to recipients.
16. Establishes and maintains procedures for application and approval for transportation of privately donated humanitarian cargo through the interagency coordination process, including the conduct of the Denton Program (space available transportation).
17. Orients newly assigned personnel within the Security Cooperation community to the missions, goals, and objectives of the USG and DoD humanitarian assistance programs.
18. Maintains the HDM section of relevant country information papers and provides management topical and/or important information via daily summaries.
19. Proponent for specialized information systems supporting the HDM mission; provides material to maintain the currency of the HDM portion of DSCA websites.
20. Manages the creation, storage, and security of classified information and government property in accordance with applicable laws, regulations, and directives.
21. Responds to goals and initiatives reflected in the DSCA Strategic Plan and the DSCA Security Cooperation Strategy. Serves on DSCA-wide committees and working groups to identify problems, correct deficiencies, and establish improvements to current business practices.
Prepared by: Tom Smith, HAMA; revised October 3, 2005

HUMANITARIAN ASSISTANCE (HA) PROGRAM

Mission: DoD humanitarian assistance activities were first authorized by Congress in 1986, essentially to transport DoD excess non-lethal property and privately donated humanitarian assistance and relief material to countries in need. In FY 1996, DoD was permitted to fund a wider variety of HA activities, including using contracts and deployment of U.S. military personnel to conduct specific humanitarian projects. 10 U.S.C. section 2561 authorizes the program and the Overseas Humanitarian, Disaster and Civic Aid (OHDACA) Appropriation, managed by the Defense Security Cooperation Agency, funds approved projects.

Typical projects include the refurbishment of medical facilities, construction of school buildings, digging of wells, improvement of sanitary facilities, and training of host country personnel in internally displaced persons/refugee repatriation operations and in disaster relief and emergency response planning. The involvement of the military geographical commanders has been key to the design and execution of the projects and the success of the program.
DSCA Responsibilities: Advises the USD (P) in all program management and execution matters relating to overseas humanitarian assistance activities. DSCA also manages all programs funded by the Overseas Humanitarian, Disaster and Civic Aid (OHDACA) appropriation.
HDM Responsibilities: • Responsible to the Director for Programs, DSCA for operational responsibility and execution of the worldwide DoD HAP.
• Implements and oversees the geographical commanders' management of DoD humanitarian programs and activities authorized by statute and for which funds are authorized and appropriated.
• Provide annual planning guidance to the geographical commanders by October 1 of each year for the following fiscal year and, review/approve their plans no later than the next July in coordination with OASD (SO/LIC) and other offices/agencies as required.
• Responsible for justification, funds control, allocation and oversight of the OHDACA appropriation.
• In conjunction with ASD SO/LIC staff and the interagency, develops or reviews combatant command and other DoD and US Government agency 'out-of-cycle' proposals and provides approval. Coordinates the execution of the project with relevant DoD and non-DoD participants.
• Responds to requests for information or guidance on HAP program management issues. • HDM prepares the annual report to Congress required by 10USC2561.
Prepared by: Tom Smith, HDM, 601-3657

FOREIGN DISASTER RELIEF/ EMERGENCY RESPONSE (FDR/ER)
Mission: DoD Components participate in FDR/ER activities 1) when directed by the President, 2) with the concurrence of the Secretary of State and 3) in emergency situations in order to save lives. DoD plays a key role in disaster situations by offering unique assets for timely and effective response to foreign nations. The US military obtains substantial training, access, and readiness enhancing benefits when providing relief to areas of need. All responses to such crises are coordinated with the Department of State (DoS), the Agency for International Development, its Office of Foreign Disaster Assistance (OFDA) and other relevant agencies. 10 USC 404 and 2561 and DoD Directive 5100.46 authorize DoD to conduct FDR/ER activities.
DoD FDR/ER may be conducted upon receipt of an official request for assistance from DoS and after OFDA receives a disaster declaration cable from the US Ambassador and/or Chief of Mission. The cable will demonstrate that three criteria have been satisfied: 1) the disaster is beyond the ability of the host nation (HN) to respond, 2) the HN has specifically requested or indicated it will accept USG assistance, and 3) the response is in the interests of the USG.
This FDR/ER authorization supports the ability of the Department, through the combatant commanders, to respond to natural and manmade disasters "when necessary to prevent loss of lives or serious harm to the environment" 1 and to manage the humanitarian considerations of security crises. The Combatant Commanders may provide immediate life-saving assistance when there is not sufficient time to seek prior concurrence from the DoS/OSD. Other emergency response activities include services and supplies for transportation1 of emergency assistance,

logistical support, search and rescue, medical evacuation, and refugee assistance. Projects also assist recipient countries and Non-Government Organizations (NGO) in building capabilities to respond to emergencies (such as training of first responders), thus, reducing the potential need for US military involvement in crisis response.

DoD can also provide low-cost, nutritionally viable, easily delivered, humanitarian daily rations (HDR) for use in foreign countries to alleviate hunger after manmade or natural disasters. The HDR nutritional content is tailored for people who are moderately malnourished or fleeing from catastrophe to a safer haven and need to eat enroute or until conventional relief programs or targeted feeding can resume. Each meal has 2,300 calories, weighs 30 ounces, and is fortified with vitamins and adequate for the widest range of cultural or religious dietary restrictions –it is meatless.

DSCA Responsibilities: The Director, Defense Security Cooperation Agency (DSCA) manages and coordinates the funding of FDR/ER activities with the Interagency and appropriate Defense Components. DSCA provides funding from the Overseas Humanitarian, Disaster, and Civic Aid (OHDACA) appropriation to claimants to support DoD foreign disaster relief and emergency response to foreign governments and their citizens after policy approval from OSD.

HDM Responsibilities: HDM action officers work with the OSD Policy Cluster, the combatant commanders, DoS-PM, USAID-OFDA, and other DoD Components to facilitate disaster assistance and emergency response missions and to procure and deliver HDR to the affected region. Once the Office of the Secretary of Defense approves DoD participation, DSCA and the Director, Joint Staff are notified to execute the mission.

Note 1: 10USC404 (a) Note 2: Per 10USC404 transportation services may be provided "only if other sources....are not readily available."

Prepared by: Tom Smith, HDM, 601-3657

DENTON (SPACE AVAILABLE) PROGRAM

Mission: The Denton program permits DoD to provide transportation of privately donated humanitarian cargo to foreign countries using military transportation on a space-available basis. The program is authorized under the Jeremiah Denton amendment to the 10th United States Code (section 402). There is no cost to the donating agency or organization for U.S. government transportation related costs.

The State Department and the U.S. Agency for International Development (USAID) must certify that the project is in the national interest of the United States, the material being transported is in usable condition, and there are legitimate requirements for the material and adequate arrangements for distribution.

There is a minimum load requirement of 2,000 pounds (one short-ton) and the donor must have a designated recipient for the cargo at the destination. In addition, users of this program are made aware that transportation depends on the availability of a military flight between specific origin and destination points, and no assurance of a specific delivery date can be provided.

The source for information and instructions at USAID's Bureau for Democracy is:
http://www.usaid.gov/our_work/cross-cutting_programs/private_voluntary_cooperation/denton.html

DSCA Responsibilities: After the State Department and USAID approve an application from an interested NGO/IO requesting space available transportation of humanitarian supplies; it forwards the request to DSCA for action. In circumstances where DSCA or other DoD organizations are the first entry point for requests, the applicant is advised to submit the

application via the DentonFunded website. An INTERNET site: http://dentonfunded.ohasis.org is established to assist requesting organizations in applying for the transportation services.
HDM Responsibilities: The HDM staff works with the donor, USAID, and TRANSCOM to facilitate the application, transportation, and delivery process. Once the application is approved by State, it is forwarded to DSCA to assign a transportation control number (TCN) and to TRANSCOM to arrange the 'space-A' mission.

FUNDED TRANSPORTATION PROGRAM

Mission: The Funded Transportation program is conducted under the authority available for humanitarian assistance - title 10 U.S.C., section 2561. This section provides DoD the authority to transport humanitarian assistance material and conduct other humanitarian assistance worldwide. The funded transportation program permits transportation of cargo and DoD non-lethal excess property worldwide for non-governmental/international organizations (NGO/IO). This authority provides for the actual cost of transportation and the payment of any associated administrative costs incurred.
While the statutory authority permits transportation via any mode and for any cargo that could be defined as humanitarian, the Interagency has established policy that imposes limits on the program due to the austere level of funding available. These policies are: (1) transport is limited only to surface modes (much less expensive than air); (2) the cargo is limited only to that which addresses basic humanitarian needs (e.g., medical, food, shelter, clothing); and, (3) the minimum cargo needed to use the program is one 20 foot shipping container, or 1,100 cubic feet.
DSCA Responsibilities: Applicants are advised to submit their application to the DSCA program manager for processing via an INTERNET site: http://hatransportation.ohasis.org, which is established to assist requesting organizations. An email is also established for those seeking information on the program – fundedtransportationprogram@dsca.mil.
HDM Responsibilities: The HDM staff works with the donor and the DoD shipping agent to facilitate the process. Once the application is approved, DSCA arranges all inspection and transportation requirements, tracks the shipment to its final destination and provides for payment of transportation costs.

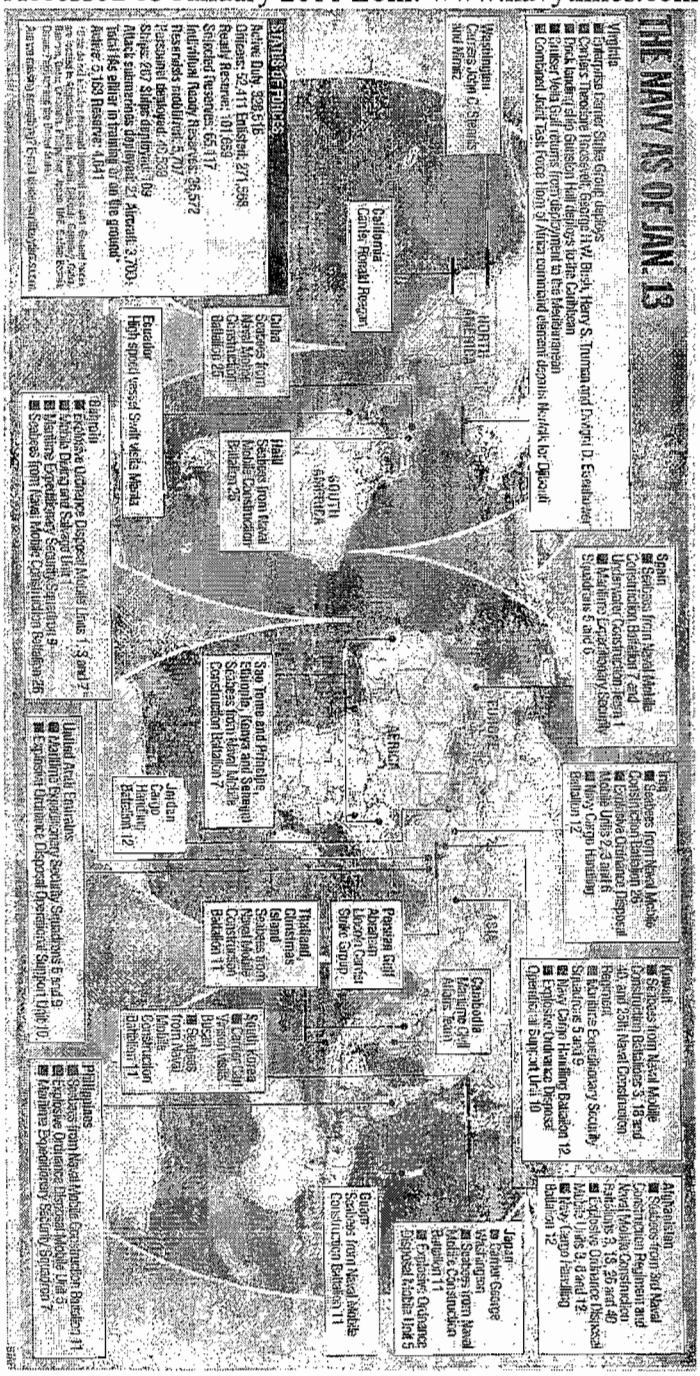
EXCESS PROPERTY PROGRAM

Mission: The excess property (EP) program, managed by the Defense Security Cooperation Agency (DSCA), permits DoD to make available, prepare and transport non- lethal excess property to foreign countries when requested by the Combatant Commanders (CoCom). 10 U.S.C. section 2557 authorizes the EP program while section 2561 authorizes preparation, transportation, and provision of EP to foreign countries.
Through the EP program, DoD donates and distributes property excess to its needs to contribute to US government efforts to avert humanitarian crises, promote democratic development and regional stability and enable countries to recover from conflict. This program can also be used to forestall acute crises and therefore minimize the need to deploy US forces.
Examples of excess property typically provided include clothing, furniture, medical / school equipment and supplies, vehicles, tools, and construction equipment.
Excess property made available for humanitarian relief purposes are transferred from the DoD to the host nation American Embassy, who is responsible for the distribution to the intended recipient (normally a host nation government ministry, a charitable-type organization, or a non-governmental organization (NGO)).

DSCA Responsibilities: DSCA manages the non-lethal excess property program through the geographical combatant commanders and the Defense Components, to include selection, screening, pre-positioning, storage, refurbishment, and shipment of material. DSCA has established a consolidated excess property warehousing activity in Albany, Georgia to manage all excess property activities, assuming all roles formally accomplished by the Defense Logistics Agency (DLA). There are also EP warehouse facilities in Germany and Japan.
HDM Responsibilities: The HDM staff work with the combatant commanders, State, USAID, Defense Logistics Agency (DLA), OGC, OASD (ISA), the Joint Staff, and OASD/SOLIC to facilitate the review, approval, designation, transportation, and delivery process. Once project requests are submitted and approved, funds are provided to the geographical commanders for EP activities including the cost of transportation, maintenance, program management, and other operating expenses associated with the movement of EP to the recipient country. The consolidated EP facilities in Albany, Georgia, Germany and Japan, prepare the property for shipment for recipients.
Prepared by: Tom Smith, HDM, 601-3657

APPENDIX C

Accessed 13 January 2011 from: www.navytimes.com.



APPENDIX D

Accessed on 20 December 2010 from: http://www.coe-dmha.org/

PACOM Center of Excellence Courses/Workshops

COE offers courses in a number of areas to improve civil military coordination and humanitarian assistance/disaster management capacity. Some of our courses/workshops are executed in collaboration with key partners, while invitation to others are coordinated with the host nation's respective US embassies. However, we welcome future key collaborators and participants that could have a valuable role to play in this event. For more information on our courses/workshops, please contact our Front Office at: frontoffice@coe-dmha.org.

Humanitarian Assistance Response Training (HART) course

The Humanitarian Assistance Response Training (HART) course provides military planning and response professionals with a two- to four-day operational-level training course with practical information and tools for use in supporting civilian-led humanitarian assistance operations, including disaster response operations. With its focus on civilian-military relations, including interacting with agencies of the Affected State and humanitarian agencies, HART provides a key professional development opportunity for evolving requirements of the U.S. military.

The operational-level course covers key areas of civil-military coordination including:

Civilian humanitarian agencies and their roles and operations: A discussion on the key humanitarian agencies military forces are likely to encounter in the field, their respective areas of expertise, and how they plan, execute and coordinate their operations.

Affected populations and their protection under international law: A discussion distinguishing the various persons of concern in a humanitarian crisis (refugee, IDP, vulnerable persons, etc.), their respective rights under international law and who is primarily responsible for the care and protection of these people.

Fundamental Humanitarian Principles: A discussion on the fundamental principles followed by humanitarian agencies and how these principles are interwoven into all aspects of humanitarian operations.

Response coordination measures used by humanitarian agencies: A discussion on the Cluster Approach utilized by humanitarian agencies in coordinating their operations, which agencies have the lead for coordination in the respective response disciplines and how the military can coordinate its operations through the Cluster system.

Response measures of effectiveness and measures of performance: A discussion on internationally recognized measures of effectiveness and performance for humanitarian crisis response operations as contained in the Sphere Project Minimum Standards.

Security strategies used by humanitarian organizations: A discussion on how unarmed civilian agencies conduct security for their staff and beneficiaries of aid, and how military Force Protection strategies interact with these strategies.

Internationally recognized principles of civil-military coordination: A discussion on internationally recognized principles on coordinating military support to civilian-led humanitarian operations in disasters and conflict situations in accordance with the humanitarian principles of humanity, impartiality and neutrality.

Assessing programs and progress in disaster management: A discussion of the purpose of conducting assessments in disaster and conflict response scenarios and an overview of the most commonly used assessment methods, indicator selection and how to use assessment results.

Frameworks for reducing disaster risk: A discussion of frameworks that can be used to incorporate the concept of resiliency into disaster risk reduction as outlined by the Hyogo Framework for Action.

Whole-of-government response and inter-agency coordination: A discussion on the United States responds to humanitarian crisis operations and how the US military fits into this Whole-of-Government response.

Disaster management principles and how the military can utilize them to build long-term reconstruction: A discussion on the accepted principles of disaster management, a review of various disaster management structures at the national level, and a perspective on the role of the military in laying the foundation for follow-on disaster mitigation operations.

Medical and public health concerns in disasters: Discussions on medical and public health issues likely to be faced by military forces in a disaster or humanitarian crisis response operation.

International humanitarian law as it relates to human rights and disaster response: A discussion for military personnel on the fundamental principles of Human Rights Law, International Humanitarian Law and International Disaster Response Law. The course consists of discussions and case studies. In the three or four-day versions of the HART, participants will also apply their knowledge in a table-top exercise in which they respond to a humanitarian crisis scenario, and a field exercise in which they construct a displaced persons' shelter.

Graduates of the HART course are better prepared to plan and respond to humanitarian emergencies in their respective capacities through increased awareness and understanding of different types of humanitarian response environments. Graduates receive a Certificate of Participation and a CD-ROM with all presentations and reference materials useful in a HA/DR operation.
The HART course faculty has diverse civilian and military experiences with subject matter expertise in humanitarian assistance, public health, disaster management, stability, security and peacekeeping operations.

For a list of the 2010-2011 courses, please see the right-hand menu. The courses are also available by request. For more information on the content of the courses, please contact Mr. Bobby Ray Gordon at bobby.gordon@coe-dmha.org or Ms. Victoria S. Hart at

victoria.hart@coe-dmha.org. For information on registering for scheduled courses, please contact Mr. Sean Nakamura at sean.nakamura@coe-dmha.org or 1 808 433-1427.

UN Civil-Military Coordination (UN CMCoord) course

Since 2004, COE has partnered with the United Nations Office for the Coordination of Humanitarian Affairs (UN OCHA) to facilitate OCHA's Civil Military Coordination (UN-CMCoord) course in the Asia-Pacific Region. The course works to build a network of civilian and military personnel that are trained in international civil-military coordination.

The UN-CMCoord Course is designed to address the need for coordination between international civilian humanitarian actors, especially UN humanitarian agencies, and international military forces in an international humanitarian emergency. This established UN training plays a critical role in building capacity to facilitate effective coordination in the field by bringing together practitioners from the spectrum of actors sharing operational space during a humanitarian crisis and training them on UN coordination mechanisms and internationally recognized guidelines for civil military coordination.

"The course is open to qualified US and foreign military personnel who are interested in civil-military coordination. Graduates of the five-day residential course receive a certificate from UN OCHA upon completion".

"If you would like to work with COE to bring a course to your region or are interested in attending a COE-facilitated course please contact victoria.hart@coe-dmha.org".

Health Emergencies in Large Populations (HELP)

The Health Emergencies in Large Populations (HELP) course is a collaborative program hosted by the Center for Excellence in Disaster Management and Humanitarian Assistance (COE) in collaboration with the International Committee of the Red Cross (ICRC) and the partnership of University of Hawaii's Office of Public Health Studies. This is a three week, intensive, graduate-level training course, providing participants with an understanding of the major public health issues to be addressed among populations affected by complex emergencies and natural disasters

The COE has conducted the HELP course for over ten consecutive years, graduating over 250 students from diverse backgrounds in public health, medicine, humanitarian assistance and disaster management. The COE's 2011 HELP Course illuminates the role of health in disaster response by emphasizing localized capacity-building efforts to achieve a high-state of resiliency for the affected populations. The course will provide participants with the tools, frameworks, and decision-making skills necessary to achieve a sustainable outcome for the affected population(s) and enable graduates to plan coherent, appropriate relief operations.

HELP Course Curriculum

The HELP course caters to mid-level, rising professionals from non-governmental organizations, government agencies, militaries, and civilians, the majority of which travel to the course from Asia and the Pacific Rim. The 2011 HELP course will be offered in three modules:

Landscape/Introduction (5 days)
Participants will be introduced to the landscape and frameworks for appropriate management of health issues in natural disasters and complex emergencies.

Health Emergency Management (7 days)
Participants will become familiar with the technical areas, roles and responsibilities, and actions necessary to promote, restore, and maintain the health of populations affected by natural disasters and/or complex emergencies. The role of health and its framework in relation to disaster operations will be described as participants explore the practical applications of such areas as nutrition, infectious diseases, environmental health, and epidemiology and sampling techniques in relation to promoting resiliency and sustainable, long-term solutions to affected populations.

Synthesis (3 days)
Participants will learn the role international humanitarian law and overarching conventions play in informing the operations of responders to complex emergencies and natural disasters. A synthesis of the course content will be presented in relation to building resiliency among affected populations and ensuring their long-term revitalization.

Pandemic Influenza workshop series

Since 2007, COE has held Pandemic Influenza workshops focused on building capacities in the Asia Pacific to respond to a possible pandemic threat. The focus is also on enhancing relationships, exchanging information and ensuring that countries are equipped with international protocols designed to facilitate effective domestic and global efforts to contain pandemics.

In 2009, COE began executing a multi-million dollar series of workshops on behalf of US Pacific Command as part of an Inter-Agency Agreement with the US Agency for International Development (USAID).

The goal is to have international protocols successfully adapted by key national players to meet each nation's unique requirements. The multilateral and bilateral workshops cover areas such as planning, surveillance, laboratory and response protocols.

COE has collaborating partners in the region that assist with the courses. The Center for Disease Control and Prevention (CDC) provides curriculum and instructors for all Laboratory related modules and the Lab courses that is being offered twice this year to build surveillance capacity within the military medical departments.

The World Health Organization assists with instructors and materials for the Rapid Response course that is being offered on a regional basis twice this year. Countries that have common borders with economic ties will work case studies that delve into some of the complexities of a

region or global pandemic. The most recent WHO Containment and Buffer Zone protocols will be used in exercises.

The Senior Leader symposium will be an information exchange and discussion of pandemic plan integration on a national level. The relationship between the MOH and the military, and international agencies will be highlighted. Plan integration, exercises, and regional mutual aid agreements with neighbors and agencies in the future will be discussed. The symposium will include a case study and subject matter expert speakers.

For more information about Pandemic Influenza events or any other COE events, please contact our Front Office at 1 808 433 7035 or frontoffice@coe-dmha.org

Regional Health Systems Strengthening workshop series

The Regional Health Systems Strengthening workshop series is designed for mid- to senior-level public health and disaster management professionals from throughout the Asia-Pacific region.

Each multilateral workshop has a different theme aimed at building different aspects of a country's health system, such as communicable disease controls or protecting the workforce. They are also customized for each region's particular health needs. Best practices and lessons learned are discussed to help build communication channels in future emergencies.

COE works with the host nation, international partners such as the World Health Organization (WHO-WPRO) and the International Federation of the Red Cross (IFRC), as well as the regional partners, such as the Secretariat of the Pacific Community (SPC), to hold these workshops.

Senior Civil Military Leaders seminar series

The Senior Civil-Military Leaders seminar series focuses on building regional cooperation in the Asia-Pacific that came about in the aftermath of the 2004 Indian Ocean tsunami that devastated part of South and Southeast Asia.

The content focuses on identifying ways in which civilian and military stakeholders can collaborate to improve disaster resiliency and response capacity both regionally and globally. Workshop is aimed at senior-level participants who can build relationships with each other as well as pass on their years of expertise on to a younger generation.

Civilian and military actors at the national, regional and international levels, including the Hyogo Framework for Action 2005-2010, are carrying out a significant amount of disaster risk reduction efforts. The workshop series is designed to be an annual regional forum where senior actors can have regular dialogue to facilitate important relationships and synergy of efforts prior to a disaster event.

APPENDIX E

2008. Amphibious Ships

Type	Name	Home-port	Max. Speed	Troop Capacity	Usable Cargo Space	Well Deck Capacity	Aircraft Capacity	Weapons	Water
Amphibious Transport Dock Mission: Transport and land Marines, their equipment and supplies by embarked landing craft or amphibious vehicles augmented by helicopters in amphibious assault.	Cleveland (LPD-7)	San Diego	21 kts	709 Marines Can surge by up to 176 Marines	11,800 sq. ft. for vehicles 38,300 cu. ft. for cargo	168' x 50' Enough for 1 LCAC or 1 LCU or 20 AAV	2 helicopter Indg spots Can operate up to four CH-46 equivalents	2 CIWS	100 K gal storage 60 K gal/day
	Dubuque (LPD-8)	San Diego							
	Denver (LPD-9)	Sasebo JA							
	Nashville (LPD-13)	Norfolk							
	Ponce (LPD-15)	Norfolk							
	San Antonio (LPD-17)	Norfolk	21 kts	702 Marines Can surge by up to 95 Marines	24,600 sq. feet for vehicles 36,000 cu. ft. for cargo	188' x 50' Enough for 2 LCAC or 1 LCU or 4 LCM-8 or 20? AAV	2 helicopter Indg spots Can operate up to four CH-46 equivalents	2 MK-31 RAM 2 30mm MK-46 2 .50-cal MK-26	
	New Orleans (LPD-18)	San Diego							
	Mesa Verde (LPD-19)	Norfolk							
	Green Bay (LPD-20)	San Diego							
	New York (LPD-21)	TBD IOC Nov 09							
Dock Landing Ship Mission: Support US Navy and Marine Corps amphibious operations including landings via Landing Craft Air Cushion (LCAC), conventional landing craft and helicopters, upon a hostile shore.	Whidbey Island (LSD-41)	Little Creek	20+ kts	402 Marines Can surge by up to 102 Marines	11,800 sq ft for vehicles 5,100 cu ft for cargo	440' x 50' Enough for 4 LCAC or 3 LCU 21 LCM or 64 AAV	Two helicopter landing spots	2 25-mm MK-38 2 CIWS	
	Germantown (LSD-42)	San Diego							
	Ft. McHenry (LSD-43)	Little Creek							
	Gunston Hall (LSD-44)	Little Creek							
	Comstock (LSD-45)	San Diego							
	Tortuga (LSD-46)	Sasebo Japan							
	Rushmore (LSD-47)	San Diego							
	Ashland (LSD-48)	Little Creek							
	Harper's Ferry (LSD-49)	Sasebo JA							
	Carter Hall (LSD-50)	Little Creek	20+ kts	402 Marines Can surge by up to 102 Marines	16,900 sq ft for vehicles 50,700 cu ft for cargo	180' x 50' Enough for 2 LCAC or 1 LCU	Two helicopter landing spots	2 25-mm MK-38 2 CIWS	
	Oak Hill (LSD-51)	Little Creek							
	Pearl Harbor (LSD-52)	San Diego							
Amphibious Assault Ship Mission: Primary landing ships for major portions of the assault echelons of a Marine Amphibious Force and Marine Amphibious Brigade. Secondary role, using AV-8B Harrier and anti-submarine helicopters perform sea control and limited power projection missions.	Wasp (LHD-1)	Norfolk	22 kts	1,893 Marines Can surge by up to 211 Marines	20,000 sq ft for vehicles 101,000 cu ft for cargo	322' x 50' Enough for 3 LCAC or 2 LCU	42 CH-46 equivalents 5 AV-8B (1) 9 helicopter spots	2 NSSMS 3 CIWS 8 .50-cal	
	Essex (LHD-2)	Sasebo Japan							
	Kearsarge (LHD-3)	Norfolk							
	Boxer (LHD-4)	San Diego							
	Bataan (LHD-5)	Norfolk							
	Bonhomme Richard (LHD-6)	San Diego							
	Iwo Jima (LHD-7)	Norfolk							
	Makin Island (LHD-8)	TBD IOC Oct 09							
	Nassau (LHA-4)	Norfolk	25 kts	1,903 Marines; no surge capacity	28,730 sq ft for vehicles 116,900 cu ft for cargo	249' x 76' 1 LCAC (2)	9 CH-53 12 CH-46 6 AV-8B (1) 9 helicopter spots	2 NSSMS 3 5"/54 1 CIWS 6 20mm Mk-67	140K gal/day
	Peleliu (LHA-5)	San Diego							
Amphibious Command Ship	Blue Ridge (LCC-19)	Yokosuka Japan	23 kts	209 Marines	3,015 sq ft for vehicles	N/A	1 SH-3G *(no CH-53)*	2 CIWS	

Mission: Provide C2 in major amphibious operations.	Mt. Whitney (LCC-20)	Gaeta Italy			2,175 cu ft for cargo		1 spot		

NOTES: (1) actual mix depends on mission assigned; (2) island structure prevents embarkation of more than one LCAC.

2009. Landing Craft

Type	Ship Class	Well Deck Capacity	Type	Ship Class	Well Deck Capacity
LHD	Wasp	3 LCAC, 2 LCU, 6 LCM-8 or 12 LCM-6	LSD-41	Whidbey Island	4 LCAC, 3 LCU, 10 LCM-8 or 10 LCM-6
LHA	Tarawa	1 LCAC, 4 LCU, 7 LCM-8 or 17 LCM-6	LSD-49	Harper's Ferry	2 LCAC, 1 LCU, 4 LCM-8 or 9 LCM-6
LPD-4	Austin	1 LCAC, 1 LCU, 4 LCM-8 or 9 LCM-6			
LSD-36	Anchorage	3 LCAC, 2 LCU, 6 LCM-8 or 12 LCM-6; if mezzanine deck erected then 2 LCAC, 1 LCU, 4 LCM-8 or 9 LCM-6			

NOTE: Planning speed for an amphibious task force is 12-13 knots.

Table 2-33. Amphibious ship well deck capacities

LCAC	• Cargo deck is 67' x 27'. • Can load 1 M1A1 tank and 2 HMMWV, 4 LAV, or equivalent trucks. • With personnel transport module can haul 120 passengers • Payload capacity is 60 tons. • Max speed is 40 knots (planning speed is 30 knots). • Offload time is ~15 minutes. • Reload time is ~ 45 minutes.
LCU-1646 Class	• Cargo deck is 12.5' x 25'. • Can load 2 M1A1 tank, or 60-70 tons of large vehicles, or 400 combat loaded troops. • Payload capacity is 180 tons. • Man speed is 12 knots. • Turnaround time (offload and reload) is roughly twice the time for an LCAC.
LCM-8 (steel hull)	• Cargo deck is 14' x 42'. • Can load 4 HMMWV, or 3 HMMWV and 1 LAV, or 150 combat loaded troops. • Payload capacity is 60 tons. • Max speed is 9 knots.
LCM-8 (aluminum hull)	• Cargo deck is 17' x 42'. • Can load 1 M1A1, or 60-70 tons of large vehicles, or 200 combat loaded troops. • Payload capacity is 180 tons. • Max speed is 12 knots.
LCM-6	• Cargo deck is 37' x 11'. • Can load an MTVR, or 2 HMMWV, or 1 LAV, or 80 combat loaded troops. • Payload capacity is 34 tons. • Max speed is 10 knots.

Table 2-34. Landing craft capabilities

Note: LCU and LCM require beach gradients of 1:20 to 1:60. Steeper slopes may cause broaching, while flatter slopes may cause grounding out.

Range	45 NM	
Speed	25 knots	
Availability LCAC per Day (from a total of 54)	Day One – 52 Day Two – 49 Day Three – 46	Day Four – 43 Day Five – 40
Operating Time	16 hours per day per LCAC	
Time per Sortie	Vehicle load - 6 hours, 8 minutes	Cargo load – 8 hours 36 minutes
Sorties per Day for Vehicles	2.6 Sorties per LCAC per day	Total = 104 LCAC sorties @ 40 LCAC per day
Sorties per Day for Cargo	1.86 Sorties per LCAC per day	Total = 74 LCAC sorties @ 40 LCAC per day
Personnel Capacity	180 troops with personnel transport module (only 24 troops without the PTM)	
Short Tons per Sortie	25 STONS or 50 pallets (500-lbs per pallet)	
Vehicles per Sortie	12 HMMWV per sortie 4 LAV per sortie 2 AAV per sortie, 1 M1A1 per sortie	4 M923 per sortie 2 M923 5-Ton Trucks,2 M198 or M777 Howitzers and 2 HMMWV per sortie
Time Details	Transit (45 NM @ 25 kts) x 2 = 216 min Well deck Operations:	Beach Operations: • 30 min for vehicles

		• 62 min for vehicles • 120 min for cargo	• 120 min for cargo • 60 min for "friction"
		Total = 368 min (for vehicles) or 516 min (for cargo)	
Unit LCAC Sortie Requirements	Infantry Regiment	325 HMMWV (all types) = 28 sorties	10 MTVR Trucks = 3 sorties
	Tank Battalion	58 M1A1 tanks = 58 sorties 8 M88A2 ARV = 8 sorties 4 M60A1 Bridge layers = 4 sorties	10 LVS combinations = 5 sorties 50 MTVR trucks = 13 sorties 108 HMMWV = 9 sorties
	LAR Battalion	144 LAV = 36 sorties 5 LVS combinations = 3 sorties	42 MTVR trucks = 11 sorties 37 HMMWV = 4 sorties

Table 2-35. Landing craft air cushion capabilities

2010. Navy Surface ships

Type	Primary Role	Air Search Radar	Weapon Systems	ID Capabilities	Data Link Capabilities	Comm. Capabilities	Aviation Capabilities
Aircraft Carrier (CV/CVN)	Fixed-wing air operations	AN/SPS-48E (3D) AN/SPS-49 (2D)	NSSMS CIWS	Rotating IFF ACDS Block 0/1 (CV Auto ID) SEC, CEC	TADIL-A TADIL-J TADIL-C ADSI	HF, EHF UHF, SHF SATCOM	Fighter squadrons (4) SH60F: Plane guard, dipping sonar, SAR
Guided Missile Cruiser (CG)	Battle group air defense	Primary: SPY-1B (3D) Secondary: AN/SPS-49 (2D)	TLAM, SM2 Blk 2/3 VL ASROC HARPOON 2 5" 54, CIWS SLQ 32 V3	Mast-mounted phased array IFF (Backup IFF mounted on SPS-49.), CEC	TADIL-A TADIL-J TADIL-C DNMFL HAWK Link	HF, EHF UHF SATCOM	2 SH60B: OTH targeting, SAR
Guided Missile Destroyer (DDG)	Air defense	SPY-1B (3D)	TLAM, SM2 Blk 2/3 VL ASROC HARPOON 2 5" 54, CIWS SLQ 32 V3	Mast-mounted phased array IFF (Backup IFF mounted on SPS-49.)	TADIL-A TADIL-J TADIL-C DNMFL HAWK Link	HF, EHF UHF SATCOM	Flight deck support landing and refueling helicopters
Guided Missile Frigate (FFG)	Surveillance	AN/SPS-49 (2D) CAS Search	76-mm CIWS SLQ 32 V3	Rotating IFF mounted on SPS-49	TADIL-A HAWK Link	HF UHF SATCOM	2 SH60B: OTH targeting, SAR
Amphibious Helicopter Assault Ship (LHA)	Sea/air landing Force assault	SPS-52 SPS-40B	NSSMS 3 5" 54 CIWS	Rotating IFF NTDS	TADIL-A TADIL-J TADIL-C	HF, EHF UHF SATCOM	Helicopters Harriers
Amphibious Helicopter Dock Ship (LHA)		SPS-48C SPS-52 SPS-49	NSSMS CIWS	Rotating IFF NTDS CEC	TADIL-A TADIL-J TADIL-C	HF, EHF UHF SATCOM	Helicopters Harriers
Amphibious Command Ship (LCC)	C2		CIWS	Rotating IFF NTDS	TADIL-A TADIL-J TADIL-C	HF, EHF UHF SATCOM	

Table 2-36. Navy surface ships

4021. Engineer Water Supply/Production Considerations

a. Tactical Water Purification System (TWPS)

The Tactical Water Purification System (TWPS) is a skid-mounted, generator-powered system able to produce potable water from any available raw water source at a rate of 1,200-1,500 gallons of water per hour. The TWPS replaces the aging 600-gallon per hour Reverse Osmosis Water Purification Unit (ROWPU), which has far exceeded its eight-year service life and cannot meet future needs. Procurement of the TWPS is complete. The Marine Corps has transferred its ROWPU to the Army but in Iraq is using many ex-USMC ROWPU on loan from the Army. TWPS supports not only to Army and Marine Corps units but also civilian agencies and/or host nations during emergencies, disaster relief, and peacekeeping missions.

The TWPS can produce drinking water from a broad range of water sources including:

- Fresh water containing dirt (dissolved solids) and micro-organisms.
- Brackish water containing dirt, micro-organisms, salt and other dissolved solids.
- Seawater containing dirt, micro-organisms and high concentrations of salt and other dissolved solids.
- Water containing nuclear, biological, or chemical warfare (NBC) agents.

The TWPS is fielded in two versions: a Marine Corps version designated MC-TWPS and an Army version designated A-TWPS. The differences between the two models centers primarily on the extended capability modules that are optional and packaged separately for the MC-TWPS but that are standard and packed with the A-TWPS. There is an Air Force version similar to that of the Marine Corps. Key differences between the Army and Marine Corps/Air Force versions of TWPS and ROWPU are summarized in the table below.

	MC-TWPS (1)	A-TWPS (2)	MC-ROWPU (3)	A-ROWPU (3)
Production Rate (gallons per hour) (4)	1,500 (fresh water) 1,200 (sea water)	1,500 (fresh water) 1,200 (sea water)	600 (maximum)	600 (maximum)
Weight (lbs) (without fuel)	9,552	22,588	7,300	16,975
Length (feet)	13.75	20.00	9.45	19.01
Width (feet)	7.17	8.00	6.91	8.00
Height (feet)	6.50	8.00	5.68	8.08
Power source (5)	60-kw generator	60-kw generator	30-kw generator	30-kw generator

Notes:
(1) The Marine Corps TWPS does not include its own generator and must obtain one separately. Extended capability modules (cold weather, waste storage cleaning, ocean intake structure system, NBC treatment and NBC survivability) are also available separately..
(2) The Army TWPS is packed in an ISO shelter on a skid that houses a generator and all extended capability modules. It also includes an extended distribution kit (not available for the Marine Corps version).
(3) The Army ROWPU includes a five-ton trailer and a generator. The skid-mounted Marine Corps ROWPU does not.
(4) These rates can be significantly reduced at low temperatures or when the water has a high content of dissolved solids. ROWPU cannot remove chlorine contamination but TWPS can.
(5) A 60-kw generator powering a TWPS cannot simultaneously furnish power for any other purpose.

Table 4-55. Comparison of the TWPS and ROWPU water purification systems

b. Lightweight Water Purification System (LWPS)

The Lightweight Water Purification System (LWPS) is now entering service with the Marine Corps. It entered IOC with the Army in FY05 and acquisition by the Army should be complete in FY09. The LWPS consists of a feed water pump, hoses, Reverse Osmosis Water Purification Unit (ROWPU) elements, ultra filtration, high-pressure pump, control panel, 3-kilowatt tactical quiet generator, and a 1,000-gallon water storage and distribution system. Like TWPS, the LWPS can purify NBC contaminated or salt water. It is mounted on modular skids that can be lifted by four people and will normally be transported in a 2-door HMMWV, though it can be lifted by helicopter or Osprey. It can supply 125 gallons per hour (GPH) of potable water from a fresh water source or 75 GPH from a salt water source. In the Marine Corps it replaces the Medium Fresh Water Purification Unit (MFWPU), which is now nearly useless because of its inability to purify NBC contaminated or salt water.

c. Load Handling System Compatible Water Tank Rack (Hippo)

The Load Handling System Compatible Water Tank Rack (Hippo) replaces the 3K and 5K Semi-trailer Mounted Fabric Tanks (SMFT). Hippo consists of a 2,000 gallon potable water tank in an ISO frame with an integrated pump, engine, alternator, filling stand, and 70-foot hose reel with bulk suction and discharge hoses. It has the capacity to pump 125 gallons of water per minute.

Hippo is fully functional mounted or dismounted and is transportable when full, partially full, or empty. It is designed to operate in cold weather environments and can prevent water from freezing at -25 degrees Fahrenheit. Hippo can be moved and set up rapidly. In addition, it can be established using minimal assets and personnel. It can be used to fill small containers, to include canteens.

APPENDIX F

Data Below on HyperLite accessed on 14 March 2011 from:
http://www.telecomsys.com/Libraries/Collateral_Documents/HyperLite_12-08-10.sflb.ashx

HyperLite

Why HyperLite?

Provides up to 6 Mbps, Designed to MIL-STD-810F requirements, Lightest, smallest system available today at 27 lbs, Interoperable with TCS micro baseband (NIPR/SIPR/JWICS CENTRIX), and Manpack design allows for flexibility & mobility.

The TCS HyperLite Microsat Family includes the latest in Microsat technology, powered by Tampa Microwave. The first available in the family is the HL45iX, a 0.45 M X-Band terminal. The HL45iX enhances the TCS VSAT product family with the smallest, lightest man portable satellite communications terminal available, designed for easy use, rapid deployment and maximum portability on the battlefield at only 27 lbs. Designed to MIL-STD-810F requirements, the HL45iX is perfectly suited for dismounted troops operating in the harshest of environments in today's terrain challenged AOR.

The HL45iX delivers the highest performance available in the market today, achieving unsurpassed data rates up to 6 Mbps to provide a terrestrial large pipe in geographically challenged areas. In addition, these terminals are Wideband Global SATCOM (WGS) certifiable. The HL45iX delivers maximum portability, supports hasty setup and teardown while delivering high speed broadband access for a wide range of critical missions. The ultra lean form factor allows for non-attributable transport and operation, ideally suited for elite military teams, tier 1 first responders, and Intel cells. Rapid network access enables immediate connectivity for command and control and data exfiltration. The HL45iX terminal allows seamless interoperability with the wide range of TCS secure micro baseband packages (NIPR/SIPR/JWICS/ CENTRIX). The HL45iX is a force multiplier that allows for rapid establishment of the network.

In order to facilitate changes in operations or technology, the HL45iX manpack features separate modem and receiver/transmitter (R/T) modules that snap together using blind mate connectors. The terminal's modular design permits field changes to substitute alternative modems.

Powered bySee TCS' complete line of products and services at www.telecomsys.com.

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TCS brings proven, technology problem- solving expertise to its professional service offerings for the public sector. From continuity of operations and information assurance, to cyber security and integrated logistics support, TCS solves the toughest technical challenges, under conditions that demand the highest level of reliability, availability, and security. As an ISO 9000-certified provider with many consultants holding active security clearances, TCS has an established track record over the past decade as a trusted partner providing mission continuity for the Department of Defense, Special Operations and intelligence communities, the Department of Homeland Security, and the Department of State.

TeleCommunication Systems, Inc. 275 West Street Annapolis, MD 21401 USA Toll Free: 1.888.728.8797

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Data Below on SWAN-D accessed on 14 March 2011 from:
http://www.gdsatcom.com/swan/swan_v1.pdf

SWAN-D v1 1.2M Terminal

ARSTRAT Certified

Rugged - Reliable - Flexible

Description

The SWAN-D-v1 1.2M terminal is equipped with an ultra lightweight 1.2 Meter Flyaway Motorized Auto-Acquire Antenna (QDMA) that is designed for world-wide transmit and receive operation in the Ku-band and Ka-Band frequency range and provides secure and non-secure communications to handle any IP application. This portable antenna consists of a segmented carbon fiber reflector and motorized positioner mount. This configuration results in an extremely low-weight and packable antenna product with superior stiffness and high performance under wind loading conditions.

The unique optical shape and accurate reflector surface provide good sidelobe and excellent cross-polarization performance. Repeatability is maintained with precision registration of the nine-piece reflector segments and RF components. The auto-acquire controller can find the correct satellite and optimize co-pol and crosspol performance with the push of a button. The terminal has a built in spectrum analyzer and controlling the antenna is made easy through the user-friendly Graphical User Interface (GUI).

SIPRnet and NIPRnet access options and IP voice and data capabilities are made available through the Cisco 3825 router and TurboIP network accelerator, Linkway IP modems provide a means for multi-carrier and multi-rateTDMA traffic, and the Intellipower UPS provides power conditioning and backup power in case of shore power failure.

The SWAN-D-v1 1.2M terminal is delivered complete and ready for immediate use in a total of five ruggedized transit cases – two outdoor unit (ODU) cases and three indoor unit (IDU) cases – that are designed to be shipped via commercial air cargo as well as military aircraft/ships/vehicles. The terminal can be assembled and made operational in 30 minutes or less by two unit level war-fighters.

Key Features

Two man set-up in 30 minutes or less
RotoMoldTransit case packaging for ruggedized carrying
Antenna Terminal Control with Graphical User Interface (GUI)
Built-in spectrum analyzer
SIPRnet and NIPRnet access
IP voice and data capabilities
Cisco 3825 routers with NME modules (SIPR and NIPR)
TurboIP network accelerator (for SIPR and NIPR)
Linkway IP modems -TDMA

Data below on BGAN accessed on 14 March 2011 from:
http://www.viasat.com/files/web/uploads/AN_PSC-14_BGAN_integrated_terminal_datasheet_033.pdf

AN/PSC-14 BGAN Integrated Manpack Terminal

Inmarsat BGAN Satellite Communications With Embedded Type 1 Encryption

The ViaSat AN/PSC-14 is a ruggedized Broadband Global Area Network (BGAN) integrated manpack terminal with encryption, that has been designed for tactical military use. The terminal integrates secure IP communications with speeds up to 422 kbps in a form factor that is highly ruggedized, manportable, and vehicular rack-mountable. For vehicular use, the terminal sits in a mounting tray and can be paired with a land mobile antenna system for communications on the move. Easily dismounted, the terminal can be operated while still in the rucksack. The detachable antenna can be located remotely up to several hundred feet away, and if necessary, the detachable front control module enables terminal operation while still on the warfighter's back.

The ViaSat AN/PSC-14 brings the IP advantage to your missions, delivering secure, manportable, high-speed Internet access that operates with Inmarsat's service on the new Inmarsat-4 satellite. This terminal combines NSA- certified Type 1 communications security and broadband speed to offer a full range of secure and non-secure data and legacy voice services to the warfighter.

The ViaSat AN/PSC-14 extends your secure, integrated network infrastructure to warfighters, enabling the entire force to be fully networked. Ready for use wherever and whenever, the AN/PSC-14 extends your network to the last tactical mile.

Interfaces to tactical computers and tablet devices

BROADBAND CONNECTIVITY. WHEREVER. WHENEVER.

Broadband SIPRNET‡ to the Rucksack
High-speed IP services using Inmarsat's BGAN system
Integrated NSA-certified Type 1 encryption for fully secure IP communications
6-pin audio for plain text voice over BGAN
RJ-11 Telephone and ISDN Handset Voice interfaces
Link mobile warfighters on the edge to the networked force
For Use on Inmarsat's Broadband Global Area Network
High-speed data network
Variable bit rate service up to 258 kbps transmit and
422 kbps receive
Guaranteed Constant Bit Rate service (streaming) up to 64 kbps
Worldwide coverage
IP and circuit-switched application support for interoperability
Key Features Enable High Military Utility
Manportable and small enough to use while in your rucksack or mounted in your vehicle
Fully ruggedized to handle your toughest missions
Powered by existing military batteries (BA-5590) for enhanced supportability
Flexible modes of operation can support diverse missions
Antenna packaged integral to terminal; slides off for quick deployment

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